The Bristol Medico-Chirurgical Journal.

"Scire est nescire, nisi id me
Scire alius sciret."

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LEPROSY IN JAMAICA.[1]

BY

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AND

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There is a singular appropriateness in reading a paper on "Leprosy in Jamaica" to a Bristol audience. In the first place, since the establishment of the Imperial Direct Mail Service, Jamaica has come to be a dependency more particularly your own, and one therefore in which you might reasonably be expected to feel more than ordinary interest. But there is yet another reason. Men of your own city played in the past no inconsiderable part in introducing the disease into Jamaica. There can be no doubt that leprosy was carried to the New World in general and to Jamaica with the rest in the train of the transatlantic slave trade; and of the part

[1] Read by Mr. Tonkin at a Meeting of the Society on December 9th, 1903.

which Bristol men and Bristol ships took in that domain of enterprise history saves me the trouble of speaking.

The scheme of the paper which I have to read to you this evening is more or less as follows:—In the first place I shall briefly touch in a general way on Jamaica itself; I shall then review the main facts about the disease in the island; and I propose finally to discuss one or two points that are at present of interest. These will include the treatment of the disease by intra-muscular injection of perchloride of mercury, the relation of diet to the disease, and the general question of curability and its bearing on the problem of compulsory segregation.

Geographical Details.—It is perhaps not altogether unnecessary, even in Bristol, to begin by saying where Jamaica is. I cannot vouch for the occurrence, but I have heard of gentlemen even in the hallowed precincts of certain rooms in Savile Row looking for it on a map of Eastern Asia. It is not in Eastern Asia. It is not even as so many suppose in the Gulf of Mexico, neither is it in the Atlantic Ocean, but in that adjunct of both called the Carribean Sea. It is one of the Antilles. The island itself is somewhere about 144 miles in length and 47 miles wide. It is a mass of mountains. The main chain runs east and west, dividing the littoral into two almost equal portions. The area of the island is 4,200 square miles, nearly half of which is at various elevations of from 1,000 to over 5,000 feet. All the principal towns are on the seacoast.

It will be seen that in some directions Jamaica offers within a small area widely-varying conditions. The results, however, of nearly thirty years' continuous observation do not show that particular location, geological or climatic conditions, have anything special to do with determining the occurrence of leprosy, the seacoast and the interior, lowlands and high altitudes, clay, limestone and sandy formations having during that time all in the same way provided foci of the disease. The evidence afforded is therefore opposed to the supposition that leprosy is in any way specifically related to any of these circumstances, and in this respect it coincides with results obtained elsewhere.

General Details.—For many years past leprosy has been

decreasing in Jamaica. Forty years ago there are reported to have been about 800 lepers in the island.[1]

I am able to report that to-day, among a population that since then has nearly doubled itself, there is probably less than a third of that number.

It is Dr. Neish's opinion and also mine that the major part of this decrease is due to the influence of segregation. Since 1878 the island has been provided with a leper asylum. The present institution, of which my collaborator Dr. Neish is chief, is situated at Spanish Town, some fifteen miles from Kingston. For many years past Dr. Mosse, the principal medical officer of the island, has made this home the object of special attention; and at the present I may say for myself that I think it comes as near the ideal leper hospital as is possible where money is as "tight" as it is in Jamaica.

The records of the home give evidence of the decrease of the disease in the island. From 1878 to 1895 they show annual admissions ranging roughly from thirty-nine in the earlier years to fifteen in the later. Up to the latter year, 1895, residence in the home was optional to lepers, there being no compulsory clause. In 1895, however, a Bill[2] was passed in the Legislative Council which had the effect of bringing all pauper lepers into the home, and this measure immediately sent the yearly admissions up to forty once more, but from that time down to the present they have again year by year steadily decreased. It is worthy of note that the decrease has been more regular since the passing of the law than before.

NUMBER OF ADMISSIONS TO THE SPANISH TOWN LEPER HOME FROM 1890 TO 1902.

Year.	Admissions.	Remarks.
1890	35	Decrease irregular.
1891	36	
1892	15	
1893	27	
1894	21	

[1] In 1872 Dr. Bowerbank gave the following figures to Dr. Gavin Milroy :—

Years.	Population.	Lepers.
1861	441,264	778
1871	506,154	749

[2] Law 15, 1896.

PAUPER AND VAGRANT LEPERS COMPELLED TO ENTER.
(Law 15 of 1896.)

Year.	Admissions.	Remarks.
1895–96	37	Years of increased influx due to compulsory law.
1896–97	40	
1897–98	38	
1898 99	20	Years of renewed steady decrease in admissions.
1899–00	27	
1900–01	19	
1901–02	9	
1902–03	—	

With regard to the total number of lepers in Jamaica we are not able to give exact figures, as there is no arrangement for enumeration. Just now, however, there are about 110 cases in the home, and as far as Dr. Neish has been able to ascertain, probably somewhere about 150 more at large. This latter number is of course conjectural, still it is not at all likely to be much under the mark. If we give the possibility of its being too small the fullest range, and put the total leper population of the island to-day at 300 individuals, we shall probably be very near the mark. There are now about 750,000 people in Jamaica, so 300 will give a leper proportion of 4 in 10,000. We are sure, if anything, that this overstates the case.

The Disease Itself.—The following details with regard to the disease itself are, of course, entirely based on the records of the home and Dr. Neish's personal experience there. Out of the 110 persons at present under supervision, 66 are males and 44 females. The population of Jamaica includes blacks—the great majority; coloured people—that is, mixtures in varying proportions of black and white; coolies, an element imported from the East Indies to work on the sugar and banana plantations; and pure whites. In the leper home these various elements are represented as follows:—One person reputed to be pure white, five coolies, and the rest coloured and black—mostly the last.

The types of the disease common in Jamaica follow the general rules observed elsewhere, the so-called anæsthetic form preponderating. The intercurrent diseases that appear to have special preference for the Jamaican leper are, as usual, those that affect the skin and various surfaces—the conjunctival, pulmonary and intestinal, for example—more or less directly continuous with it. They include conjunctivitis, iritis,

rhinitis and ozœna, catarrhal and inflammatory affections of the lungs, bowel disorders and nephritis. The following diagram, which is based on the average state of affairs at the Spanish Town home gives at a glance the proportions in which these various disorders occur:—

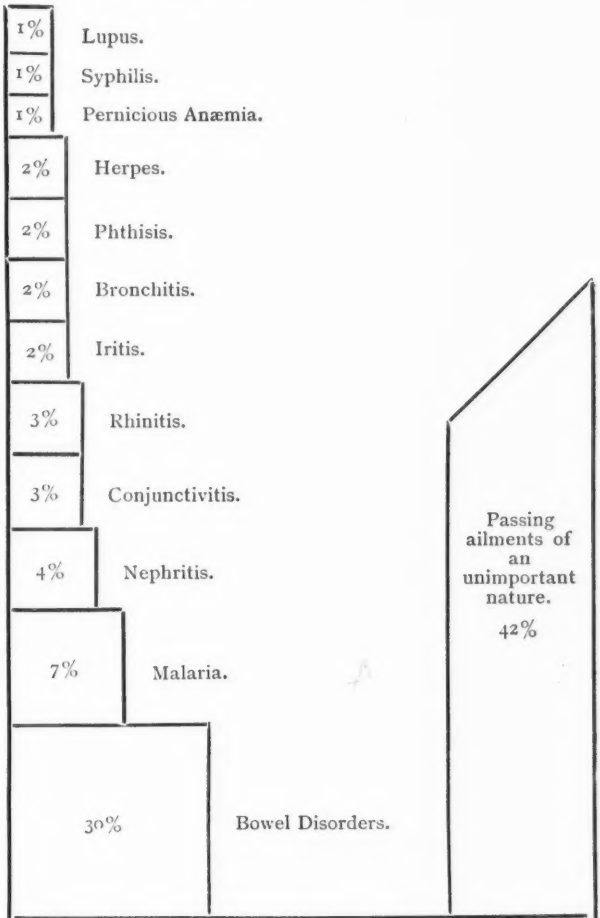

CHART SHOWING PROPORTIONS OF VARIOUS FORMS OF DISEASE INTERCURRENT WITH LEPROSY IN JAMAICA.

The period over which fatal leprous disease usually extends works out for the Jamaica leper house at ten years for the anæsthetic variety and seven for the tuberculated. The average death-rate in the institution is 10 per cent., and the diseases that most usually terminate life are chronic diarrhœa, chronic nephritis, phthisis, chronic bronchitis, pernicious anæmia and syphilis, probably in the order named.

Diet.—With regard to the relation which diet holds to the occurrence of leprosy, we have at the present time to deal with three more or less divergent sets of views. We have, first, the opinion so strongly held by Mr. Hutchinson that fish in a badly preserved condition is in some way or other answerable for the occurrence of the disease; secondly, there is the view that inefficient diet is a powerful and common predisponent to the disease, a view which I hold myself; and, thirdly, we have a large body of expressions of opinion which appear to mean that dietetic factors are of little or no importance whatsoever.

It is not my purpose now to push again my own particular [1] theory of the origin of the predisposition of the disease, but I should like to say that in my opinion the influence of the bacillus of leprosy on the human organism is broadly comparable to the action of any other adverse influence on any other object. It is a question of attack and defence. Take, for example, the action of wind and rain on the plaster of a building. If the plaster be well and soundly made we may expect that, within reasonable limits, it will sustain little or no damage from the inclemency of the weather; if, on the other hand, it is made of bad stuff and ill put together, crumbling and leakage may be looked for.

The tissues of the human body are composed of material containing definite proportions of certain chemical elements. These elements are built up into complex organic combinations, and as wear and tear are always in progress, constant reinforcements of the component elements have to be supplied. The source of these reinforcements is the diet, and if the food supply of any individual or race does not contain a sufficiently high proportion of any one or other of the essential elements, a

[1] *Med.-Chir. Tr.*, 1902, lxxxv. 145.

weakness of the resulting structure directly proportionate to the extent and importance of the element lacking will be the inevitable result. The weakness will show itself in various ways, among others as lowered resistance to the action of morbid influences; and as the ill-made plaster of the building yields readily to stress of weather, so will the tissues of a body so unfortunately constituted give way more easily to the attacks of their peculiar adversaries than those of one more properly and completely nourished.

I do not wish to press the point further at the moment. But it is an incontestable fact that all the leper areas of the world coincide with areas inhabited by peoples whose national diets, show and show in many cases very strongly, a marked and definite chemical inefficiency, namely a shortage of nitrogen; that historical instances can be cited to show that the disease has in most cases slowly receded before improving dietetic conditions; and that to-day a relation between cheaper and better food and decreasing leper rates can often be clearly demonstrated. To a limited extent Jamaica is an instance of the last. The exact place I would give to the diet of the Jamaican of to-day among the diets of the world is that of an inefficient diet that is steadily improving.

The poor class Jamaican is, however, still vegetarian to an extreme degree. This is capable of very clear proof. Dr. Neish is surgeon to the police depôt, where the recruits for the Kingston and general island force are trained. When negroes are brought in fresh from the mountain districts it is necessary to put them on to the regular rations of the force, which include one pound of uncooked meat a day, gradually and with the greatest care. They are at first totally unable to digest the meat, and unless precautions are strictly observed it acts as an irritant, and violent attacks of pain, sickness and diarrhœa result.

The diet that such men as these have been taken from is a bare one. At least half—perhaps it will not be too much to say three-quarters—of the population of the island still live almost exclusively on articles among which the starchy roots of tuberous plants figure largely. "Bread-kind" the natives call them.

Yams (*Dioscorea sativa* and *aculeata*), sweet potatoes (*Ipomœa batatas* and *Batatas edulis*), eddoes (*Colocasia antiquorum*) and bread-fruit (*Artocarpus incisa*) are the chief of these. Fruits, such as mangoes, star-apples, oranges, and to a certain extent bananas, are also freely eaten when in season, but the starchy tuber in general and the yam in particular may be taken as the basis of the diet.

The average daily round is much as follows:—

First thing in the morning a hot drink is made by infusing such herbs as cow-foot, lemon grass or lime leaves in water. This is sweetened with sugar and called "tea." On the coast where bread is obtainable it is occasionally eaten at this meal; but up-country, where even unleavened bread is scarce, a piece of the stale boiled yam of the day before takes its place. At midday a pot is boiled containing yams, bread-fruit or any other available "bread-kind," flavoured with an ounce or two of shad (a kind of herring), or mackerel, or of that particular brand of salt cod that is, I believe, known all over the British West Indies as "Halifax Mutton." This meal is eaten about one o'clock. At night, after sundown, another "pot," a big one this time, is put on, in which the eternal "bread-kind"—yams, eddoes, sweet potatoes, as the case may be—again flavoured with a microscopic proportion of "salt-ting," as the salt fish or salt beef element is called, is once more boiled to a soup, the eating of which closes the dietetic round of the day.

The amount of starchy tubers eaten by the ordinary man in the course of the meals of an ordinary day ranges from one to three pounds, that of the more highly nitrogenised elements averages under two ounces.

Things are improving, however, in this direction in Jamaica. There is evidence to show that as a whole the food resources of the people are gradually widening. Cattle have been and are being introduced into the island; an agricultural society has been working for years past towards the improvement of the various indigenous crops and the introduction of others suitable; peasant proprietorship is extending, and these changes mean to Jamaica what all ameliorative changes mean for all races they may affect—in the first place more

abundant and better food. Leprosy is emphatically a disease of the ill-nourished classes; improve the circumstances of a race, and you decrease the numerical strength of those classes. The circumstances of Jamaica have been very radically improved during late years, and though it may not be capable of direct proof, there is little doubt that this improvement has not been without its influence in assisting to determine the regular yearly lessening of the amount of disease in the island.

From the question of diet in general we may conveniently turn to that particular article on which so much discussion has lately taken place.

For many years past Mr. Hutchinson has supported with the whole weight of his great experience and influence the theory that leprosy is a disease the incidence of which is in some way determined by the use of unsound fish as an article of diet; and it was suggested to Dr. Neish and myself that we should give special prominence to details with regard to the consumption of fish in the island, with a view of determining the degree of connection between it and the disease. We are afraid Jamaica cannot be relied upon to supply any very definite evidence either for or against the fish theory. The habits of the people with regard to this matter are universal. We have not in Jamaica, as in India, a large number of clearly-defined classes whose customs vary widely and more or less rigidly, nor have we districts that are inaccessible to fish. There is but one class, generally speaking, in the island of Jamaica, and that class eats fish: one district only, and to every part of that district, on the coast and up the country, fish penetrates. That the fish eaten is small in amount has no bearing on the question as at present discussed; it is universally eaten, and that circumstance divests the situation of any special interest from the point of view of those who oppose the fish theory. Nevertheless, I did my best to discover from the figures obtainable what variations in the consumption of fish had taken place during late years. Leprosy has steadily decreased during the last thirty years. The question to be decided was, what movement in the consumption of fish, whether increase or decrease, was during that period to be set against it. With a view to doing this

I passed in review both qualitatively and quantitatively the fish imports of the last thirty years. The figures that resulted were more or less neutral. It does not appear that Jamaica has altered its habits in the matter of fish even fractionally during the period under consideration. In the five years from 1873 to 1877 inclusive the total amount of all kinds of fish imported into the island was a little over 95,000,000 pounds weight. During the last five years, from 1899 to 1903 inclusive, it has been a little more than 122,000,000. These amounts and the rate of increase during the years that intervene agree almost exactly with the course taken by the population, which has increased during that period from 570,000 odd in 1881 to somewhere about 750,000 the year before last. It will be seen these figures have but little active bearing one way or the other. All that we can safely say with regard to fish in Jamaica is, that in small amounts the commodity is universally consumed by a population that includes to-day 300 or less lepers among 750,000 persons, and that though the disease has decreased by two-thirds during the last thirty years while the general population has largely increased, the fish-eating habits of the people, and the type and quality of the fish consumed, appear to remain at the close of that period the same as they were at the beginning.

Treatment.—With regard to the treatment of leprosy generally and in its widest sense, the record of the Spanish Town home is a good one. But before I go on to speak of routine treatment and its results I would like to give you some details of the use of one particular remedial measure, namely the intra-muscular injection of perchloride of mercury. There seems to be more unanimity among leprologists with regard to the value of this particular remedy than with reference to any other; and it was suggested to me by Mr. Pernet that as one of us (Dr. Neish) had made extensive trials of it, we should embody some report of the results in this paper. In fighting such a disease as leprosy every fresh-proven weapon is an added advantage, and I am pleased to say that Dr. Neish regards the mercurial treatment as distinctly valuable. Starting in 1899, he has now put about 100 specially-selected patients through the

mercurial mill, with favourable results in almost every case. For several reasons Dr. Neish prefers not to use an oily vehicle for the remedy. Perchloride of mercury and common salt, of each a quarter of a grain dissolved in 20 minims of distilled water, is the preparation he thinks most suitable. This is injected through a platinum and iridium needle deep into the muscles of the back or buttock. This injection, which is made twice a week, gives great pain, and causes a lump to rise as hard as a stone and about as big as a pigeon's egg. The pain wears off in from two to four hours, the swelling disappears in the course of a week, and the next injection but one can, if desired, be put in or about the same spot.

Out of the hundred cases treated in this way by Dr. Neish, in only one was any untoward result observed. In this case—a woman—profuse salivation was induced, and the treatment was consequently dropped. In all the others the results have been favourable. Ulcerations have healed or been markedly improved, tuberculations have shrunk, pain has been lessened, the mental condition made brighter, and even in some cases a certain extent of surface sensation has seemed to have been re-established. It is now nearly four years since the treatment was first tried, and the improvement in health brought about in those dealt with then has in almost every case been maintained. That the improvement is one that is evident to the patients themselves seems clear, for if they did not derive distinct benefit from the treatment it is doubtful if they would put up with the pain it causes them. It is worthy of notice that out of the thousands of injections that have been made at the Spanish Town home not one has resulted in an abscess.

We are glad to be able to give so promising an account of this method of treatment, and we think there is no doubt that in suitable cases—that is, those of reasonable strength of body and free from grave organic disease or cachexia—it is a most valuable adjuvant, perhaps the most valuable we have, in the struggle with the disease. More than an adjuvant, however, it can probably never be. I think both Dr. Neish and I agree that in treating leprosy the only method of general application is to act on the assumption that the bacillus of the disease is not of

sufficient virulence to maintain its footing in the face of the resistance offered by the tissues of a well-nourished individual under ordinary conditions and in a normal state of health. It is imperative, therefore, in every instance to aim first at the improvement of the health of the person attacked, and to relegate to a secondary place the extermination of the attacking organism.

This is the line adopted by Dr. Neish at the Spanish Town home. Each case is treated on its own special requirements, and the effort is always towards upbuilding. Cleanliness is insisted on. Every patient is compelled to bathe in the large concrete baths provided by the institution at least three times a week, and ulcers are dressed twice daily.

The mental side of the individual is attended to. Books are provided for those who can read, and as many illustrated papers and magazines as can be obtained for all. For those that can play, outfits for cricket and other games are provided. For the evenings there is a lecture-room in which plays, readings and concerts are given. With the exception of those unfit for any form of occupation, none are allowed to remain idle. Light work is found for all, and an interest is given to it by a system of bounties. For the children there is a school, and one of the most interesting of my recollections of the home is that of the dominie—an aged, white-haired, horn-spectacled negro-leper ringing his bell at the schoolroom door, while from various quarters sundry little limbs of night came shuffling up, more or less reluctantly, in answer to the sound.

But it is with the dietary that we come to the main weapon in the armoury of the Spanish Town home. The dietary of the institution is a liberal one. I append a diet sheet [1] to this paper, and it will be seen that instead of getting yam, with a bit of salt fish to flavour it, as his staple food, the leper, after entering the home, finds himself face to face with a menu that includes, as well as his national foods, bread, milk, meat and peas. There can be no reasonable doubt that the improvement that takes place in the condition of so many of the inmates almost immediately on reception is due to the change for the better in their

[1] Appendix I.

diet, and due to that almost solely. No reasonable person watching case after case pass in and at once pick up without any other than general attention could come to any other conclusion.

The laws of the island do not provide for the compulsory segregation of any but pauper and vagrant lepers; many, therefore, do not come to the home till they are so broken up by the disease as to be unable to do anything more for themselves. It is Dr. Neish's firm conviction that if he could get these cases earlier he could in almost all instances, except where the presence of grave constitutional vice renders the progress of the disease unavoidable, prevent the occurrence of the paralyses, ulcerations and mutilations that have come to be regarded as the almost necessary outcome of the disease. In other words, that he could by careful personal attention, dietetic and hygienic measures vastly modify and often cure the disorder, and in this matter I entirely agree with him. Feed your leper, and you break the back of his disease.

These convictions are amply supported by the records of the home. Appended to this paper you will find the report of a case [1] exactly as it stands on the books of the institution. It is interesting evidence on this point. When first admitted the patient was 53 years of age, and had been leprous many years. He was in a condition of advanced anæsthesia. He had lost all his fingers and toes, was much emaciated, and had a large plantar ulcer. He entered the home in February, 1899, and was placed at once on the liberal dietary of the institution. No other measures—no mercurial, chaulmoogra, or other treatment—were adopted; rest, cleanliness and good food were allowed full and sole play. By January, 1900, after a lapse of eleven months, the plantar ulcer had filled up, and the man's condition is reported as vastly improved; while thirteen months later still, in February, 1901—two years, that is, after his first reception—finding the good health maintained and all ulcerations remaining soundly healed, Dr. Neish recommended the case to His Excellency the Governor as one for discharge, and the man was accordingly sent home in May of the same year.

[1] Appendix II.

That was May, 1901. It is now December, 1903, and it is of interest to know that there has been no return of ulceration, that the man's general health is still good, and that to-day he is doing something towards earning his living.

I am not throwing stress on this matter of recovery with the idea that I am bringing anything new to the notice of those intimately associated with leprosy. Doubtless, indeed, many who are not in close touch with the disorder are aware of the facts on this point. Nevertheless, a notion that the disease is incurable is widely spread among members of our profession. A glaring statement to that effect finds a place on the pages of the latest edition of at least one educational handbook of medicine that I could mention, and it is with a view to doing what I can towards the correction of this idea that I am making these remarks. Leprosy is a disorder of which every grade exists. In every endemic area where one person suffers from a severe grade many contract slighter degrees from which they may recover without outside help, and even probably in some cases without recognising the condition. And among those who take the disease more severely, improved surroundings and more wholesome diet may be relied upon to very greatly improve, and in an appreciable proportion of the cases cure, the disorder. The process is slow, but I have not seen one nor two, but scores upon scores of cases in which its success had been beyond a doubt, and as a result I would put "incurable" out of the list of adjectives that may with propriety be applied to leprosy.

The bearing of a true appreciation of this matter on a course to be pursued in any given case, or the policy of any given institution, is simple but important.

In the past, at any rate, many so-called leper sanatoria have been merely prisons for the confinement of persons supposed to be dangerous to their respective communities. Once the gates of such institutions closed on a leper, for all practical purposes that leper ceased to be. Such a thing as providing for recovery was not thought of, and the deprivation of hope robbed the victim of the system of much of the energy that should have helped him, if not to recovery, at least back on the way to it.

The home at Spanish Town is no penal settlement of this kind. Dr. Neish preaches to his patients the gospel of hope; and he has been able to show them that their hope is not without foundation, for in spite of the extreme caution which, in view of the present state of public feeling, has to be exercised in putting opinions of this kind into effective operation, he has been able during the last four years to discharge fifteen of his patients, not one of whom has given him any cause to regret his decision.

Summary.—Leprosy is decreasing in Jamaica. During the last thirty to forty years the number of lepers has been reduced by about two-thirds; the proportion to-day does not exceed four out of every ten thousand inhabitants. The island is provided with an admirable leper home, and the decrease in the amount of the disease is probably largely due to the influence of this institution.

In common with many other parts of the world that are leper-smitten, the diet of the native Jamaicans is markedly deficient in nitrogenous elements. The average native comes so rarely in contact with any appreciable quantity of highly nitrogenised food stuff, that an ordinary beef-steak acts on him as an intestinal irritant. The general condition of the people, and with it the diet, are, however, steadily improving.

Fish is universally consumed by the Jamaicans; but from the data obtainable it is not possible to make any definite statement as to whether or not it is in any way causally related to leprosy. Such small balance of evidence as there is would, however, appear to indicate that no such relation exists.

The treatment of the disease by the intra-muscular injection of perchloride of mercury has been extensively tried in Jamaica, and there is little doubt of its value as an adjuvant to good feeding and careful general attendance. A hundred selected cases have been treated in this way with benefit, sometimes very considerable, in almost every case.

As to general treatment, both the writers of the paper are convinced that in leprosy the line most generally applicable is that which improves the bodily condition of the person affected, and their experience leads them to believe that an improved diet

is the most powerful agent in this direction, and the one most requently required.

They both also regard leprosy as a disease that is in many instances capable of sound cure.

APPENDIX I.

DIET SCALE.

Institution Diet.

6.45 a.m. Coffee, ground, ½ oz., or tea made of native herbs, ½ pint; milk, 1 oz.; sugar, 1 oz.; bread, 4 ozs.

Breakfast.

11.0 a.m. Monday, Thursday and Saturday—Fresh beef or goat mutton, 4 ozs.; barley, ¾ oz.; flour, wheaten, 2 ozs.; yam, 4 ozs.; half a lime; salt, 1 dram.

9.30 a.m. Tuesday and Friday—Bread, 4 ozs.; butter, ½ oz. Wednesday and Sunday—Porridge, consisting of cornmeal, 4 ozs.; milk, 5 ozs.; sugar, 1 oz.; bread, 4 ozs. (On Sunday no bread will be issued for breakfast.)

Lunch.

12.30 p.m. Sunday, Tuesday, Thursday and Friday—Bread, 4 ozs.; sugar, 1½ oz. Monday, Wednesday and Saturday—Bread, 4 ozs.; fruits in season. (On Wednesday no bread will be issued for lunch.)

Dinner.

4.30 p.m. Monday, Wednesday, Friday and Saturday—Fresh beef, 4 ozs.; vegetables, 2 ozs.; yams, 12 ozs., or rice, 6 ozs.; half a lime; salt, 1 dram. Tuesday and Thursday—Yam, 12 ozs.; salt fish, 6 ozs.; cocoanut oil, ½ oz.

3.30 p.m. Sunday—Red peas, 4 ozs.; yam, 8 ozs.; salt beef, 4 ozs. (6 ozs. of rice may he given to coolies in lieu of yam if they desire it.)

Hospital Diet.

7 a.m. Arrowroot, 1½ oz.; sugar. 1½ oz.; milk, 5 ozs.

9 a.m. Sago, 1½ oz.; sugar, 1½ oz.; milk, 5 ozs.

5 p.m. Arrowroot, 1½ oz.; sugar, 1½ oz.; milk, 5 ozs.

Stimulants: Whisky, port wine, gin.

Extras: Fresh beef, ½ lb.; eggs, 1 or 2; butter, 1 oz.; milk, 10 ozs.; rice, 3 ozs.; bread, 4 ozs.; biscuits, 4 ozs.; coffee or herb tea, half-pint; condensed milk.

Note.—Extras are only allowed at the discretion of the medical superintendent.

APPENDIX II.

JAMAICA LEPER ASYLUM. CASE BOOK D, NO. 12.

P—— G——, male, aged 53 years, a brown labourer, was admitted on the 25th February, 1899, from Cornwall, St. Elizabeth. He thinks the disease was acquired at Lacovia, in the same parish.

Family History.—Both parents dead; cause of death unknown. Has two brothers and two sisters, in good health and free from the disease. As far as he knows, no member of his family is afflicted with leprotic disease.

Personal History.—Was born at Cornwall, St. Elizabeth. Has been vaccinated; is unmarried, but is the father of one child. Has always enjoyed good health until the present disease developed many years ago, the first symptoms being painful joints, numbness and cramps, and later on ulceration of fingers and toes. Has always resided in Jamaica.

Present Condition.—This is an advanced case of anæsthetic leprosy. Patient much emaciated. There is a large superficial ulcer on the sole of the right foot. The toes and fingers of all the extremities are absent.

January, 1900.—This man's condition has vastly improved. The ulcerations have entirely healed. The general health is improved.

February, 1901.—The good health of this inmate is maintained. No ulcers exist. Recommended for discharge under Section 9.

Discharged by order of His Excellency the Governor on the 7th May, 1901.

SUBUNGUAL EXOSTOSIS.

BY

W. ROGER WILLIAMS, F.R.C.S. Eng.

THE curious affection known as "subungual exostosis" appears to have been scientifically described for the first time by Dupuytren, who discriminated cases as early as 1817; hence it is also often called "Dupuytren's exostosis."

In studying the natural history of this condition, one cannot help noticing the great frequency of its occurrence as compared with other ossiform skeletal outgrowths; for of 111 consecutive formations of this kind tabulated by me, 35—or more than

one-third—were subungual. In like manner, of 82 osteomata at Guy's Hospital from 1889 to 1901, 26 were subungual (McGarvin).

Another striking peculiarity is the almost complete limitation of the disease to the terminal phalanx of the great toe, for this was its localisation in 34 out of the 35 cases comprised in my list.

In the exceptional case alluded to, the outgrowth was connected with the terminal phalanx of the middle toe of the right foot, the patient being a girl eleven years old. Other instances of this kind have been reported by Debron and Chassaignac. Next to the great toe, the little one is most frequently affected—of which Paget, Liston, Debron, and others have met with instances. In the Hunterian Museum (Nos. 1595-8, Pathological Series) are several specimens of subungual exostoses prepared by Liston, in one of which the tumour is connected with the ungual phalanx of the little toe, near its distal extremity. They have been seen on the second toe by Gosselin and Miramond, and on the fourth toe by Cusco; in short, any of these toes may very exceptionally be affected.

Similar tumours have, in a few rare cases, been seen also on the digits (Fontanel, Gosselin, Hutchinson, etc.).

The subungual exostosis is almost invariably solitary and unilateral; but in a young woman, seventeen years old, Poncet found a symmetrical formation of this kind on each great toe.

Of 23 cases tabulated by me, in 14 the right foot was affected and in 9 the left.

These outgrowths are usually of small size, few of them being larger than a pea. Having increased slowly for some years, they then cease to grow. In this mature state they are firmly attached to the inner (tibial) side of the ungual end of the phalanx, in such a manner that the tumour appears to be a branch from the latter. On section of dried specimens, the tumour is seen to be a real outgrowth from the phalanx, consisting externally of dense cortex and internally of trabecular structure, both of which are directly continuous with the corresponding structures of the phalanx. Such is the appearance of a typical mature specimen; but between this complete

blending of the normal part with the morbid structure and their complete separation, every intermediate grade may be met. Pediculated forms are of common occurrence, the extent of the osseous connection being very variable.

The connection of these outgrowths with the inner margin of the terminal end of the phalanx is a feature of great constancy; but exceptionally their attachment is to the dorsal aspect of the phalanx, or even, it is alleged, to its external margin or free end.

Examples of discontinuous formations of this kind, which are rare, have been reported by Trélat and Blandin, who compared them to sesamoid bones. In a case described by Chassaignac, a tumour of this kind was situated in a depression on the surface of the phalanx, from which however it was quite distinct.

A fact of remarkable interest about these growths is that they evolve through cartilage, and their ossification is believed to take place from but a single centre.

The subungual exostosis is usually invested externally with a thick layer of fibrillar tissue, which is continuous with the periosteum of the phalanx; while beneath this, between it and the bone, a layer of fibro-cartilage may generally be found, which is the remains of the original chondromatous rudiment.

From what has been stated, it may be inferred that subungual exostoses originate from a cartilaginous "rest," which is generally situated beneath the periosteum of the phalanx, in the vicinity whence these outgrowths commonly arise.

Here it seems desirable to call attention to the tendency which subungual exostoses have to re-form locally after removal, unless their matricular structures are completely extirpated, which, as a rule, can only be assured by removing at least the terminal portion of the phalanx together with the outgrowth. The following is a good example of the consequence of neglecting this precaution:—

A healthy-looking boy, nine years old, came under my notice with a recurrent tumour of this kind. One year previously he had first noticed a small hard tumour beneath the inner border of the nail of his left great toe. Some months later this was snipped off, but the present growth soon afterwards began to

form. The recurrent disease, with a small portion of the adjacent part of the phalanx, was now excised; but evidently not enough was removed, for nine months later he was seen again with a fresh growth, the size of a pea, in the same situation as before. The histological structure of the growth was that of an ordinary subungual exostosis, capped with fibro-cartilage. This second recurrence was dealt with by removing the tumour, together with all but the articular extremity of the phalanx, and he was thus completely cured.

Here it seems desirable to point out that these little tumours are essentially benign. I am not aware of a single instance in which a growth of this kind has ever manifested malignant properties. Consequently, I am surprised to find a statement in a recently-issued *Manual of Surgical Treatment*, to the effect that these tumours "are not infrequently sarcomatous." It is true that Cornil some years ago, basing his diagnosis solely on histological grounds, described a specimen of this disease as "ossifying sarcoma"; but I believe all surgical pathologists now recognise that this was a mistake. However this may be, I have convinced myself that the ordinary subungual exostosis is a benign formation, with little or no tendency to malignancy.

These formations, as a rule, first attract notice during adolescence, the average age of 13 patients under my observation being 18 years. The first indications of the disease were generally noticeable from a few months to one year earlier than this. The earliest age at its onset was 8 years, and the latest 29: 10 out of my 13 patients were from 15 to 25 years old, and this is the usual period for its onset. Gosselin has met with an instance in a woman 47 years old. A discontinuous tumour of this kind, of congenital origin, has been described and figured by Annandale.

Both sexes are liable to be affected, although it is of much commoner occurrence in females than in males, 27 of my 35 cases being females.

In the majority of cases the disease appears to arise spontaneously; that is to say, without any obvious external cause. This was so in 10 out of 13 cases as to which I have information; in the other 3 cases there was a history of previous injury.

I know of no instances of hereditary transmission, although, on *à priori* grounds, it seems likely that such may occur.

With regard to the clinical features of the disease, the first thing to attract attention generally is pain in walking. On examination a small hard tumour, fixed to the phalanx, may be found projecting slightly beneath the inner side of the nail, which is often more or less deformed and displaced. The adjacent soft parts are apt to be eroded and swollen through inflammation. Owing to complications such as these, the condition may easily be mistaken for ingrowing toe-nail, onychia, or for a warty or corn-like growth.

As previously mentioned, the only effective treatment is to remove the tumour, together with the distal end of the phalanx whence it grows. The articular end of the phalanx and the inter-phalangeal joint should not be interfered with, as this would weaken unnecessarily the arch of the foot. An endeavour should be made to save the matrix of the nail. The operation is effected by cutting small anterior and posterior flaps, and dissecting them off the phalanx sufficiently to expose the tumour and the part of bone whence it grows, which is then cut off with a bone forceps.

In discussing the origin of subungual exostosis, it is necessary to point out at the outset, that the tumour can have no genetic relationship with the epiphyseal cartilage of the phalanx, which is situated at its articular extremity, far removed from the vicinity whence these formations originate. Moreover, in cases of multiple epiphyseal exostoses—even when the toes and fingers are involved—the subungual form of the disease is never met with. Pic has described a skeleton which presented 194 epiphyseal exostoses, many of which were situated on the toes and fingers, but not a single one of these was subungual.

Surgeons commonly ascribe the causation of these growths to various extrinsic factors, such as traumata, tight boots, etc.; but, as I have previously pointed out, the clinical history of cases seldom supports this view. Moreover, it is obvious that whatever part such factors may play, they cannot account for the cartilaginous origin of these tumours, nor for the fact that they so often grow again after they have been cut off. In this connection it is curious to note the oft-repeated allegation, that supernumerary digits may likewise re-form after incomplete

removal. In these cases we evidently have to do with growth and development, rather than with products of "irritation" and "inflammation."

These formations differ from most other exostoses and from true tumours—(1) In the unusual frequency with which they arise from their seat of election, viz. the great toe; (2) in the extraordinary constancy of their localisation to the tibial side of the ungual phalanx, near its distal end; and (3) in the structure of the tumour itself, as previously detailed.

In these respects, the subungual exostosis appears to me to bear more resemblance to a teratological anomaly, than to a neoplasm.

Recent researches as to the origin and development of the limbs of vertebrate animals indicate, that we must look to a paddle-like structure with more than five digital rays for the architype of the human foot and hand. Supernumerary digits probably result from the dichotomous division of one or more of the terminal rays at the extremity of a limb. Such reduplication may be partial or complete. From redundant matricular elements thus formed, a more or less perfectly-developed supernumerary digit may evolve; or, in its least complete form, the anomaly may eventuate merely in the formation of a bifid terminal phalanx. In other cases, the redundant matricular elements may undergo more or less complete suppression, only some rudiments being discoverable in the tissues of the part in the adult, or, may be, only in the embryo. On this subject Wiedersheim remarks: "In human embryos of the second month a distinct cartilage is present on the tibial side of the tarsus, and this probably answers to a small bone on the tibial border of the foot of monotremos, American marsupials, edentates, carnivores, rodents, insectivores and monkeys. This most likely corresponds to a redundant first toe (pre-hallux)." Bardeleben maintains that the ancestors of modern mammals were heptadactylous, and that they have lost a digit from the post-axial as well as from the pre-axial side of the foot.

I think the evidence here adduced, is sufficient to warrant me in associating the cartilaginous germ of the subungual exostosis of the great toe, with the rudiment of this lost

pre-hallux in its least complete form; and it accords with this, that digital anomalies *per excessum* are of most frequent occurrence in connection with the great toe.

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ANEURYSM OF THE ASCENDING AORTA.

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CASES of aneurysm of the ascending aorta are generally divided into two groups—those affecting its very root, and those which arise from its next portion, that between the sinuses of Valsalva and the origin of the innominate artery.

The three cases recorded in this paper belong to the second class. Their exceptional character consisted in the fact that they arose from the concave side of the ascending aorta and gave evidence of their presence on the left side of the sternum, whereas the great majority arise from the convex side of the

aorta and grow to the right. Cases of this character are so rare, that they are not even mentioned in some treatises on diseases of the heart and aorta, *e.g.* in those by Bramwell and Gibson, and they present some difficulties in diagnosis which are not experienced in the more usual type of case.

Mrs. A., aged 40, a patient of Dr. Martin's, was admitted to the Infirmary on August 10th, 1901, complaining that for three weeks she had had a sensation of a "throbbing lump" in the chest, which was worse after exertion and better after a night's rest. She had had rheumatic fever ten years previously, but no other illness, and there was no history or evidence of syphilis or malaria. She had had six healthy children, and one born dead at full term (a breech presentation). Her occupation was that of a housewife, and was not laborious.

On examination of the chest, the apex-beat could be felt just inside the nipple in the fifth intercostal space; there was no general ventricular impulse and no thrill. On percussion, the superficial cardiac dulness was found to be normal. In the second left interspace, extending from the left border of the sternum to one inch outside it, was an area which was dull on percussion and pulsated with an impulse slightly later in time than the apex-beat (Fig. 1). This barely-visible impulse was easily palpable; it was smooth, without any vibratile character, and as it died away from under the finger no diastolic shock could be felt. The area of dulness and pulsation did not become appreciably less when the patient made a deep inspiration. There was no dulness on percussion over the sternum or in the third left intercostal space. The rate of the heart-beats was 84 per minute, and they were regular in time and force. The radial pulses were synchronous, of the same rate as the heart-beats, and easily compressed; the brachial and radial arteries were not thickened. There was no tracheal tugging. On auscultation the cardiac sounds were normal at the apex; at the right base the second sound was slightly accentuated. Over the dull area in the second left intercostal space a rough, low-pitched murmur could

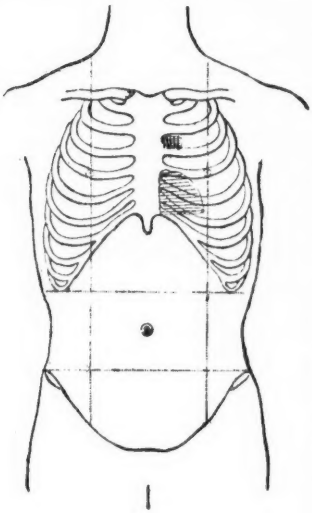

Fig. 1.

be heard synchronous with the palpable impulse, followed by the accentuated second sound. The lungs and abdomen were normal. The urine contained a trace of albumin. There was no œdema of the legs or other part of the body, and the patient was not anæmic. The larynx was normal. On skiagraphic examination by Mr. Taylor, a pulsating bulge to the left of the ascending aorta could be seen, corresponding in position to the area mentioned above, though extending a little further outwards.

The patient was put to bed and kept in the horizontal position. Solid food was not restricted, but she was asked to take as little fluid as possible. Twenty grains of iodide of potassium were given three times a day, from August 10th to November 5th.

During the month of September the aneursym increased slowly in size. Thus, on November 1st, the area of dulness and pulsation in the second left intercostal space extended to the distance of two inches from the left border of the sternum, and had spread into the first space, whilst the transverse aorta had been pushed a little upwards, and could be felt beating in the episternal notch, and the apex-beat was now one inch outside the nipple in the fifth space (Fig. 2).

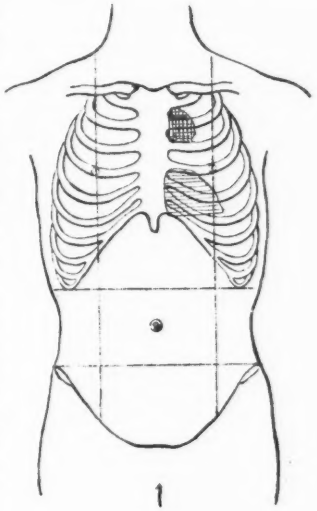

Fig 2

Injections of gelatine were begun on November 5th, and were given twice a week from that time until the patient left the Infirmary on January 10th. By that time twenty injections had been made; there was, however, absolutely no result, the physical signs being precisely the same as they had been on November 1st.

I have heard that the patient remained in bed for about a year after, taking iodide continuously, and then gradually got about. The physical signs remain the same.

W. B., aged, 37, was first seen on January 13th, 1898. He had had gonorrhœa, but not syphilis, nor any other illness. For some months he had been troubled by a cough. On examination of the chest, it was found that the apex-beat of the heart was in the fifth space, half an inch inside the nipple line. The rate was 66 per minute, and regular. In the second left

intercostal space, extending outwards about an inch from the left border of the sternum, pulsation slightly later in time than the apex-beat was visible and palpable. On percussion, this area was dull, whilst the third intercostal space was resonant on light percussion (Fig. 3). The radial pulses were synchronous, regular, of the same rate as the cardiac-beats, and of moderate tension. The brachial and radial arteries were not atheromatous. On auscultation, the cardiac sounds were normal at the apex, the second sound on the right of the sternum was not accentuated, whilst on the dull area and for half an inch round it a loudish, rough, systolic murmur was audible, followed by a second sound barely

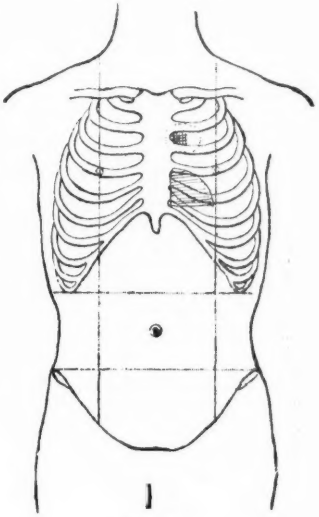

Fig. 3.

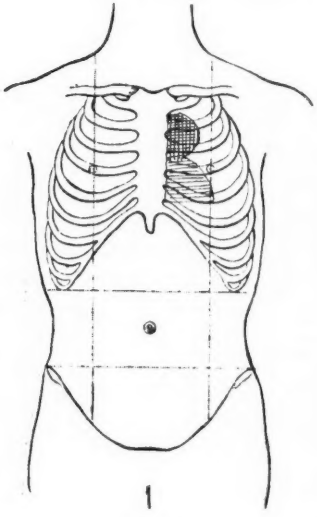

Fig. 4.

different from that heard to the right of the sternum. There was no evidence of pressure on any intrathoracic structure; in particular, the vocal cords were normal. The lungs, abdomen and urine were normal.

Iodide was prescribed and absolute rest advised.

Six months later the aneurysm had increased in size, extending into the first and third left intercostal spaces (Fig. 4). Further, the systolic pulsation was attended by a thrill, the systolic murmur could be heard over the back as well as over the pulsating area, and the second sound was lower in pitch over the aneurysm than on the right side of the sternum. There was still no sign of

pressure on veins, nerves, or air-passages within the thorax.

The patient passed from under my observation, but eventually, I believe, got quite well.

No skiagraphic examination was made.

E. C., aged 37, a sergeant in the army, was admitted to the Infirmary on August 28th, 1902, at the request of Dr. Wallace. He had had for some five months a sense of discomfort in the chest, especially when lying on the left side. Sixteen years previously he had had a venereal sore, which, as far as he could remember, was not followed by any "secondary" symptoms. Otherwise he had been healthy. For three months he had been kept in bed on a restricted fluid diet, and had been given large doses of iodide without any improvement resulting.

The condition on admission was as follows. The right side of the chest was normal. On the left side the apex-beat was in the fifth space, one inch outside the nipple, regular in rate, 80 per minute. In the first, second and third left intercostal spaces was an area of dulness on percussion, reaching from the left border of the sternum outwards for the extent, in the third space, of four inches. This dull area was continuous with that of the heart below (Fig. 5). This dull area visibly pulsated, and on palpation each pulsation, slightly later in time than the apex-beat, was felt to be vibratory in character, and the systolic thrill was immediately followed by a diastolic shock.

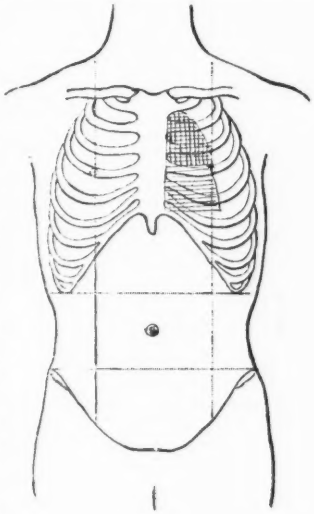

Fig. 5.

The radial pulses were equal and synchronous, and easily compressible. There was distinct atheroma of the brachial and temporal arteries. No tracheal tugging was present, nor any evidence of obstruction of veins, arteries, trachea, bronchi, œsophagus, or sympathetic nerves within the chest. The vocal cords were normal.

On auscultation, a rough systolic murmur could be heard all over the front of the chest, obscuring the first cardiac sound, though loudest over the dull, pulsatory area above the heart. It could also be heard over the back of the chest on the left side. An accentuated second sound could be heard on the right of the sternum, and also, but of lower pitch, on the left

side over the pulsating area. The lungs, abdomen, and legs were normal. The urine had a sp. gr. of 1020, and contained a small quantity of albumin.

The treatment consisted of rest in bed, restriction of fluids, and the administration of 20 grains of iodide three times a day. In addition, gelatine injections were given twice a week, commencing on September 2nd, and they were continued until the patient went out in January.

I cannot say that any improvement took place; though the thrill accompanying the systolic pulsation disappeared for a few days at the end of September, it soon returned, and other physical signs remained unchanged.

The patient, though never having any pain, became in course of time very restless and miserable, and during the last two months of his stay in the Infirmary morphia had to be injected twice daily. I subsequently heard that he died three months afterwards with œdema of the legs.

The diagnosis in the second case (on the second occasion that I saw him) and in the third case was simple and easy. In each there was a pulsating tumour on the left side of the upper part of the sternum, with a systolic thrill and murmur, diastolic shock and accentuated, low-pitched second sound over the tumour, some displacement of the heart, and no sign of involvement of the transverse portion of the aortic arch.

In the first case and in the first stage of the second case the diagnosis was somewhat of a difficulty, though confirmed in both either by skiagraphic examination or by subsequent events. There are two other conditions which may produce a pulsating patch of dulness accompanied by a systolic thrill in the innermost part of the second left intercostal space—anæmic dilatation of the heart and deficiency of the left border of the lung. The points of difference, however, are the following. In both conditions the dulness on percussion in the second left space continues downwards through the third space to join that of the superficial cardiac dulness in the fourth. In anæmic dilatation the systolic murmur is soft and blowing; there is in addition obvious pallor, and the patient is usually young. In the second condition the murmur is loud and rough, but usually disappears when the patient is told to take a deep breath and hold it; further, the individual is in perfect health and capable of prolonged exertion.

Examination with the X-rays and fluorescent screen in such

doubtful cases is of great value and may serve to make a diagnosis certain, for only in aneurysm is a sacculated pulsating bulge of the aorta to be seen.

These cases of aneurysm, like those projecting to the right from the convex side of the ascending aorta, do not involve any other important thoracic organs, veins, arteries or nerves. They were instances of "aneurysm of physical signs" of Broadbent, in contradistinction to the "aneurysm of symptoms" occurring in the transverse portion of the aortic arch. In no one of the cases was any pain complained of. What attracted the patient's attention was a sensation of discomfort or throbbing.

The heart was not hypertrophied in the two first cases, the only change being slight cardiac displacement as the aneurysm slowly enlarged; this is what might have been expected, for there was no increase in the peripheral resistance. In the third case a moderate degree of atheroma was present, but as far as could be ascertained it had not caused hypertrophy of the heart, which was apparently merely a little displaced.

In all three cases the impulse over the aneurysm was distinctly later in time than the apex-beat, as could be easily ascertained by placing one forefinger on each spot. This is due to the fact that the apex-beat is not caused by the systole of the ventricle, but by the filling of the ventricle from the auricle.

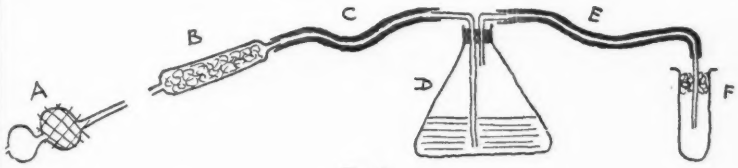

Fig. 6.

There is an error in drawing this figure, for in the flask the long and short tubes should be reversed.

The method employed in preparing and administering the gelatine injections was as follows: 200 c.c. of distilled water are put into the flask D (Fig. 6), to this are added 1.4 grammes of common salt and 4.5 grammes of pure transparent white gelatine. On boiling the gelatine dissolves, forming a 2.25 per

cent. solution. The flask is fitted with an indiarubber stopper, through which pass two small tubes, to each of which is attached a piece of thick-walled indiarubber aspirator tubing, C and E. To the other end of C is fixed a wide glass tube filled with sterilised cotton wool, whilst to E is attached the injection needle, which is packed round with sterilised cotton wool and inserted into the test-tube F. The apparatushas the merit that when it is heated the expanding air can escape at either end, and in subsequent cooling it is sucked back through the sterilised cotton wool. In this way, not only the gelatine solution but the air in the apparatus also can be made and kept aseptic.

The apparatus was put into an autoclave at a temperature of 120° C. for ten minutes on three successive days to sterilise the contents. When required, the gelatine flask was heated on a water bath to blood-heat; an indiarubber bellows A (such as is used in a freezing microtome) was then attached to B, the needle was taken out of the test-tube F and thrust deeply into the gluteal muscles of the patient, and the gelatine solution was slowly injected by compressing the bellows.

In the great majority of injections the patients had no pain beyond that caused by the prick of the needle; on one or two occasions some pain was experienced for an hour or two—possibly caused by the needle piercing a nerve. The usual result of an injection was a rise of temperature to 100° F. for a few hours, but there was never any inflammation or suppuration, nor, needless to say, tetanus—a result of the great care taken by Mr. Taylor, Dispenser to the Infirmary, in preparing and sterilising the solutions.

In the patients on whom this treatment was tried no change was perceived, either for good or evil. This corresponds more or less with what has been generally found. In some few cases partial consolidation or even cure has resulted, but this has been exceptional. It is possible that the beneficial action of gelatine is impaired or destroyed by the repeated sterilisation, which was carried out from remembrance of the fact that in some few cases tetanus has occurred.

And this liability is by no means small, for Tuck[1] has recently

[1] *J. Path. and Bacteriol.*, 1903, ix. 38.

discovered tetanus spores in eight out of fifteen samples of gelatine examined. He has also found that though tetanus spores are very resistant to the temperature of boiling water, yet one exposure of the gelatine solution to a temperature of 120° C. for ten minutes will absolutely kill them. It seems possible then that the failures above mentioned were due to unnecessarily repeated sterilisation of the solution.

THE VAGARIES OF ABDOMINAL TUBERCULOSIS: A CLINICAL STUDY.

BY

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THE diagnosis of abdominal tuberculosis is often beset with much difficulty, owing to the wide range of variability presented by the clinical symptoms. Indeed, the operative treatment of these cases may be said to date from the time when Sir Spencer Wells mistook a case of tuberculous peritonitis for an ovarian cyst: he closed the abdomen, and was astonished to find that the patient made a rapid recovery.

Since this classical error of 1862 we have learnt of many other conditions which abdominal tuberculosis may simulate, and I propose to relate a series of typical cases exemplifying the diagnostic difficulties which arise.

As in so much of abdominal surgery, our powers of diagnosis are coming on too slowly behind our capabilities of treatment; but this is partly compensated for by the fact that—as in Sir Spencer Wells's case—the exploratory incision frequently leads to a permanent cure of the condition. On the other hand, operation may hasten an inevitably fatal issue, and it is in these cases that we need more light in diagnosis to prevent falling into error.

Where medical treatment fails I believe that operation gives

the best chance, if performed in about five weeks after an acute and five months after a chronic attack of primary abdominal tuberculosis, but of these straightforward cases I do not desire to speak. My object is to draw attention to the cases where the abnormality of the symptoms produces a difficulty in diagnosis over and above that which usually occurs.

Case 1. Acute tuberculous peritonitis resembling intestinal obstruction and appendicitis.

The patient, a female, aged 24 years, was suddenly seized with abdominal pain and vomiting after a heavy meal of beef and pudding. The pain was general at first, but subsequently was located in the right iliac fossa. The bowels acted after enemata only, and with difficulty. Five days after the commencement of the attack the vomit became stercoraceous. One sister died of phthisis, and the father was suffering from the same disease. The patient had an anxious expression, and the general condition was one of great gravity. The abdomen was much distended, tympanitic in front, dull in both flanks, but more on the right than the left side. There was general abdominal tenderness, but more marked in the right iliac fossa. On the fifth day of the attack an exploratory incision was made. On opening the peritoneum about twenty ounces of blood-stained fluid escaped. There was universal matting of the intestines, but the adhesions were easily separated in various directions, small quantities of fluid escaping from between the coils of gut. Both large and small intestines were of a bright red colour, being highly congested and swollen. On the parietal and visceral peritoneum were numerous discrete, elevated, milky-white, circular patches, varying in size from the head of a pin to that of a common tack. The vermiform appendix appeared normal. After operation the vomiting ceased, and two good motions were passed spontaneously; but the patient gradually sank, and died three days later.

Such an extremely sudden onset does occasionally occur in cases of acute tuberculous peritonitis, and the family history of phthisis might have led to a correct diagnosis; but in the face of a sudden onset, pain in the right iliac fossa, distended abdomen, and stercoraceous vomiting, the conclusion that we had to deal with a case of paralytic obstruction due to an appendicular peritonitis seemed irresistible.

These ultra-acute cases nearly always end in a general tuberculosis, and could we but diagnose them the surgeon would of course leave them severely alone; but the acuteness

of the intestinal disturbance is usually so great that the majority of them are mistaken for intestinal obstruction, and a needless operation is performed.

The following extraordinarily complex case bears some relation to the one just recorded, and emphasises the great difficulty of diagnosis in a more marked degree.

Case 2. Acute tuberculous peritonitis (? Addison's disease) resembling intestinal obstruction.

The patient, a male, aged 48 years, had always been athletic and abstemious, but there was a previous history of hæmoptysis and fistula in ano, and a recent attack of what appeared to be appendicitis. After eating a dinner, at which he complained of having taken some "bad goose," he was seized at 3 a.m. on the morning following with marked purging and vomiting. This was regarded as being probably due to ptomaine poisoning, and at first there were no abdominal symptoms and no pain except when the bowels acted. While vomiting at 11 a.m. he suddenly fell back in a state of great collapse, and looked as if he were dying. After much energetic treatment he rallied a little, but the collapse did not pass off. At 3 p.m. a shifting dulness was noticed, first in the right flank and afterwards in both flanks. When I saw him about 6.30 p.m. he had an "earthy" look, and was much collapsed with a thready pulse. He was vomiting small quantities of mucus and altered blood. The abdomen was distended, and there was dulness in each flank, but there was no tenderness. Over the greater part of the abdomen there was hyper-resonance, the liver dulness was diminished, and the heart sounds were audible over the abdomen. I regarded the case as one of ruptured duodenal ulcer, and advised an exploratory incision; but before any operation could be commenced he vomited a "coffee-ground" material, collapsed, and rapidly died. A *post-mortem* examination was performed, and the doctor supplied me with the following account of it:—"There is no doubt in my mind that he died of Addison's disease. Both supra-renal bodies were involved beyond recognition in masses of caseous material, white as putty, intermingled with fibrous tissue. The spleen was twice its normal size, and the left end of the pancreas, the omentum, and the top of the left kidney (capsule and adrenal) were all fixed together by an irregular mass of caseous and fibrous substance the size of a medium-sized potato. This and the enlarged spleen produced the dulness in the left flank. The tubercular surrounding of the right adrenal was smaller. There was no free gas or fluid in the peritoneal cavity. There were signs of a perfectly healed appendicitis. Miliary tubercles were scattered over the bowel walls, but not visible elsewhere. A fibrous and caseous tubercular condition was present at the apex of each lung."

The writer of the above letter makes the following apposite comments on this case:—"Did you ever see a congeries of symptoms so exactly simulating a perforation or rupture of an abdominal organ with commencing peritonitis? . . . It is a question whether there really was ptomaine poisoning. If so it probably acted as a shock, and precipitated the final syncope of Addison's disease. Even the vomiting and diarrhœa may have done so."

Acute cases of Addison's disease and sudden death from syncope are well known, but I am not aware of any case of death under twenty-four hours without the existence of previous symptoms.

I am rather inclined to think that the simulation of acute abdominal mischief was more likely brought about by the acute miliary tuberculosis of the intestinal walls. This would establish a parallel condition to that found in Case 1, and yet allows of the existence of the pathological evidence of an Addison's disease which had not had time to declare itself clinically.

Whatever the true explanation may be, it does not relieve us much from the difficulty of diagnosis in so complicated a case.

We now come to the chronic form of abdominal tuberculosis. The cases in this division are attended with a similar degree of difficulty, but it is a fortunate fact that operation, though undertaken in error as to the exact condition, is attended by the most gratifying results.

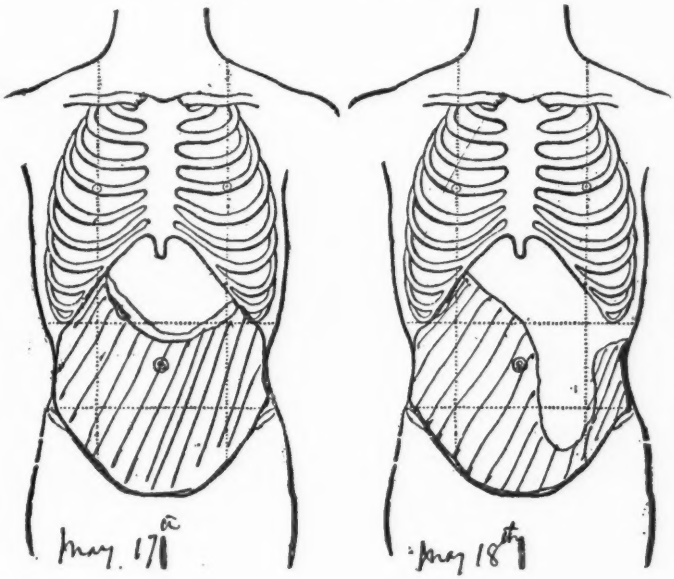
Case 3. Chronic tuberculous peritonitis resembling ovarian cyst.

The patient, aged 41 years, had a period of ill-health, which was followed about six weeks before she came under observation by pain in the left side of the abdomen and a gradually increasing abdominal fulness, especially marked for the past fortnight. There was much emaciation, the patient weighing only a little over five stone. The lower abdomen was tense and prominent, and gave an indistinct sensation of fluctuation and thrill as high as two inches above the umbilicus. There was resonance above the pubes and in various parts over the front of the swelling. The temperature was 101°. On opening the abdomen, between the umbilicus and pubes, a large quantity of yellowish fluid (sp. gr. 1020, neutral) escaped. The intestines were much congested, and the parietal peritoneum was of a

deep red colour. The surface of the intestines, uterus, etc., and the parietal peritoneum was very rough from innumerable deposits of miliary tubercle as far as the finger could reach. The intestines were matted together above and to the left, forming a sort of cavity by which the fluid was contained in the right iliac fossa, and thus giving rise to the resemblance of an ovarian cyst. The abdominal cavity was sponged out to remove the remains of the fluid, and the wound closed without flushing or drainage. Recovery was rapid, and six months after operation the patient weighed nearly seven stone, and was "better in health than she had been for a long time."

It is surprising how closely some of these cases of encysted peritonitis can resemble ovarian adeno-cystomata and parovarian cysts. The diagnosis is effected by observing the irregular relation of the areas of resonance and dulness (*e.g.*, resonance over the pubes is common in tuberculous peritonitis and rare in ovarian cysts), the presence of fever, and the rapid accumulation of the fluid. All these were present in the case reported above.

Another condition which helped me to correctly diagnose a similar case is the manner in which the relative positions of the



dulness and resonance produced by the constantly changing amount of gaseous distension of the coils of intestine varies from day to day. This is exemplified by the accompanying diagrams, in which the dull area on two successive days is roughly represented by the shaded portion. It will, of course, be noticed that on each occasion the upper margin of the dull area was concave, which is the converse of that which obtains in the case of ovarian cystoma.

Case 4. Chronic tuberculous peritonitis resembling appendicitis.

A female, aged 6 years, had complained of marked pain in the right iliac fossa, especially before and during defecation, for four weeks. The bowels were loose, and the motions had been streaked with blood. The temperature kept at about 101°. Just internal to the right anterior superior iliac spine an indurated area could be felt reaching inwards for some 2½ inches from the iliac spine and shading off along Poupart's ligament. This swelling was fixed and tender. On examination, *per rectum*, some matting could be felt in the pelvis. An incision made near the right anterior iliac spine disclosed a large amount of tuberculous granulation tissue in the ileo-cæcal region, matting the intestines in the neighbourhood together. Numerous mesenteric glands were found enlarged, and the intestines generally were covered with miliary tubercles. The granulation tissue was freely scraped away and the abdomen closed. The temperature was normal after the fourth day from the time of operation, and there was a gradual gain of flesh and strength. After a visit to Weston, during convalescence, the child continued quite well.

The resemblance to appendicitis was very marked in this case, and it may be compared with the acute form mentioned in Case 1.

I have met with cases of a true tuberculous appendicitis, and even after operation I could not be perfectly sure that the lesion in Case 4 had not actually spread from a tuberculous inflammation of the appendix.

Case 5. Tuberculous disease of mesenteric glands resembling retro-peritoneal abscess.

A male child, aged 4 years, after a few days' malaise, was seized with vomiting of a severe character. This continued for twelve days, and there was much loss of flesh. There was no complaint of pain, and no elevation of temperature except once, when it rose to 99.4°. The bowels had acted throughout, and at first there was diarrhœa. About four days before I saw him

there was a more or less defined tender swelling in the right hypochondrium for two days. Under chloroform the liver was felt to be somewhat enlarged, and this had probably caused the appearance of a "swelling." The child was listless and had a drawn look about the eyes. There was marked tenderness on pressure in the right hypochondrium, and an exploratory incision was decided on lest there should be an abscess. A 2-inch vertical incision was made in the right semilunar line, just below the costal margin. The small intestine was found to be congested. In the mesentery were numerous enlarged lymphatic glands, varying in size from a pea to a grape. These were yellowish-white in colour (? from early caseation) and of firm consistence. Nothing else abnormal was found, and the abdomen was closed. No sickness occurred after operation, and the patient rapidly put on flesh. In the course of six weeks the doctor wrote to say that the transformation was remarkable, and that the patient was "fat and chubby and overflowing with good spirits."

This was certainly a very happy termination to a most extraordinary case. It is unique in my experience; but if in the future it can be shown that operation does good in other cases of tuberculous mesenteric glands, it will bring this matter into line with the general effect of exploratory incision in cases of chronic abdominal tuberculosis.

Case 6. Chronic tuberculous peritonitis resembling malignant disease of the stomach.

A female, aged 45 years, complained of occasional "pain in the stomach" and sickness for about two years. The sickness generally came on soon after food, and the pain was relieved by the vomiting. For about a year she had noticed some swelling of the abdomen, and this had been more marked during the past five weeks, for which period she had been confined to bed, with an increased amount of pain and bilious vomit for the last fortnight. She had been getting thinner for twelve months, but more markedly so lately. Her eldest son was said to have "consumption." On examination the abdomen was found distended and resonant. Between the umbilicus and the right costal margin was a firm, irregular, more or less fixed mass about as large as the palm of the hand. This, in conjunction with the vomiting, suggested that it might be a tumour of the stomach. An examination of the gastric contents, however, showed a fair amount of acidity, and there was some matting in the pelvis. On opening the abdomen in the mid-line above the umbilicus, the tumour-like mass was found to consist of thickened, contracted, and adherent tuberculous omentum. There was matting of the intestines in the neighbourhood. The

abdomen was closed, sickness ceased, and with the gradual improvement of the patient the tumour-like mass disappeared.

This case brings to mind those instances of "disappearing tumours," where masses indistinguishable clinically from malignant disease have disappeared spontaneously from the abdomen. It is highly probable that many such cases are really of a tuberculous nature.

The six examples just given show how difficult a matter it may be to correctly diagnose some cases of tuberculous peritonitis; and, in the five operations recorded, surgical measures were undertaken because of a wrong diagnosis or because the case was so obscure that an exploratory incision was required to make it clear.

In most of the cases the tuberculous nature of the mischief came as a welcome surprise, for on looking at the results obtained in all the operations, except that of the case of acute tuberculosis, it is clear that cœliotomy exercises a most beneficial effect even in most desperate cases. This fact fully justifies the resort to exploratory incision in all doubtful cases of tumour or inflammatory mischief in the peritoneal cavity. In the subacute and chronic forms of peritoneal tuberculosis operation, as we have seen, may be productive of much good; but in the acute miliary tuberculosis of the peritoneum, which resembles intestinal obstruction or appendicitis, operation is powerless to stop the fatal issue, and therefore should not be performed if it was possible to make a correct diagnosis.

It is in the acute cases that so much difficulty exists in diagnosis, and in the present state of our knowledge it is almost certain that some of them will continue to be mistaken for intestinal obstruction, but fortunately these cases are comparatively rare. Acute intestinal obstruction is such a fatal affection if left for more than twenty-four hours, that there is very little time for delay in cases where this condition is suspected, and it is better that we should occasionally operate by mistake on a case of acute miliary tuberculosis of the peritoneum than that an acute intestinal obstruction—which is much more common—should die without relief.

There was a family history of tubercle in both the acute

cases, and attention to this fact in cases of apparently acute intestinal obstruction, where the obstruction does not appear to be absolute, may occasionally prevent us from falling into error.

In the chronic cases operation, though undertaken on a false diagnosis, is generally the best treatment for those instances of abdominal tuberculosis which resemble other diseases. The mistake therefore is not of much clinical importance; but in endeavouring to come to a right conclusion the following symptoms—most of which are exemplified in the cases related above—should be carefully observed: A tubercular history is generally present, and an elevation of temperature is not uncommon; in cases resembling an ovarian adeno-cystoma the accumulation of fluid is more rapid in tuberculosis than in ovarian cysts, there is resonance over the pubes, and the areas of resonance and dulness are irregularly disposed and vary from day to day; in other cases the long duration of the disease favours the diagnosis of tuberculosis, frequency of micturition is common, and matting of the pelvic viscera as felt on rectal examination (which should never be omitted) is often present.

THE PRESENT POSITION OF RADIOTHERAPY IN THERAPEUTICS.[1]

BY

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Now that there is a general concession that good work is being done by some or all of the different forms of radiant energy, it may be as well to enquire whether we may be able to detect any theory upon which we may work, and thus remove, if possible, these novel forms of treatment from the limits of absolute empiricism.

[1] Read at a meeting of the Society held on January 13th, 1904.

Whether we use sunlight, the electric arc, the X-ray tube, radium, or the high-frequency apparatus, we find the energy produced differs mainly in the penetrability and quantity of the ultra-violet light or rays of lesser wave-length. The effects produced by any of these methods are similar in kind, though of course much more vigorous with some forms of apparatus than with others.

If we examine a "reaction" we see that at first an erythema occurs, which may pass off without further development; it may, on the other hand, continue to develop into a blister, or the epithelium be only separated on the subsidence of the erythema. With larger dose the epithelial scales may become sodden and come away wholesale, leaving behind little bleeding granulation-like points which tell us of our proximity to the true derma. This might be termed a necrosis of the epithelium.

At first undoubtedly in all forms of this treatment the tissues are exhilarated; later they become depressed. But undoubtedly the healthy cells are more readily invigorated and less easily depressed than diseased cells. Accordingly we see the diseased cells affected adversely first, and it is a frequent phenomenon that after a dose of the X-rays in a case of lupus a marked erythema affects the lupus tissue, while the surrounding healthy tissue is not affected at all.

This can only be explained by a local change, whether vascular or primarily nervous. To my mind it could not be the latter, since to my knowledge no case is on record in which a reaction has spread far beyond the limits of the part exposed and arranged itself according to a nerve distribution. The local stasis, however, indicates an effect upon the vessel walls themselves, or possibly on the nerve end-plates in the vessel walls themselves, which temporarily inhibits them.

We are then in possession of the knowledge that healthy cells are encouraged, and diseased, *i.e.* less highly-organised cells, are depressed.

Now, turning to the therapeutic possibilities of this, we would naturally expect that—

1. Those diseases depending upon a malnutrition of the skin would be benefited by anything which promoted the

healthy growth of the healthy cells. In this way we may explain the good wrought in trophic, varicose, and other ulcerations.

2. Again, in cases where ordinarily the skin can, but in the circumstances present cannot deal with disease. In such diseases as in chronic and resistant eczema, psoriasis, and acne we have conditions where it would not be wrong to say that the tendency was always to recovery. But in inveterate cases ray treatment has been found to be of value.

In these two classes the dosage aimed at is such as shall only have stimulating effects.

In a third class I would place those diseases in which partial repair is the rule, but where it is not common to see complete recovery without some outside intervention. Lupus vulgaris, rodent ulcer, and perhaps scirrhus will come under this heading. If then the dosage can be so regulated that the cells of the diseased area can be depressed, while the healthy surrounding cells can be encouraged, the result may be that the diseased cells may be cast off as a slough, as may happen in rodent ulcer, or such a limiting line of demarcation be formed that further spread may be inhibited. The diseased area at the same time is flooded with blood which is of use in lupus, and the cells stimulated to dispose of germs if these are not actually destroyed by the rays.

In this case the rays are required as a selective caustic, and the dosage required has to be measured with the very greatest care.

There is a small class which may well be mentioned, for they have to do with the removal of the hair. Eczema barbæ and sycosis are readily cured under the X-rays, and tinea tonsurans and favus capitis have been reported as more easily treated after the depilation caused by the rays.

In carcinoma it is essentially the "caustic" action which is sought for, an action at the same time which will not destroy the healthy cells.

This brings us to the consideration of the possible treatment of cancer by means of the rays. Undoubtedly the X-rays have a special affinity for epithelial structures. What this

affinity consists in is as yet undecided; but undoubtedly effects occur which are not shared by the mesoblastic layers to the same degree. That this alteration produced is progressive and secondarily retrogressive would appear to be the normal. Yet whether the retrogression is procured rapidly enough to arrest or keep pace with the disease is doubtful in many reported cases. It is certainly disappointing to hear of cases which to all intents and purposes are seemingly ideal for the X-ray treatment, and which, though treated carefully and skilfully, show no good result, but occasionally leave a doubt behind as to whether or not the rays have done more harm than good. But yet it remains that some numbers of cases of malignant disease have been reported "cured." It is certainly a great drawback that so many cases of rodent ulcer have been mixed up unclassified in the statistics; but even apart from these a large number seem to be undoubted cases of carcinoma, as definitely stated by the writers. M. Perthes[1] states that thirty-five authors have reported cures of superficial cancers. He himself has had good results with cancer of the breast, and believes that the action does not stop short of the epithelial layers of the skin, but reaches the deeper-seated tumours. Warts, he says, have disappeared, although treated through a sheet of human skin held over them. He believes that there is a preference for epithelial cells, whether normal or cancerous. But it would seem that cancerous epithelium is more easily affected than the normal; for in the experiment of Beckett, quoted by Norman Walker and Gardiner,[2] where he treated simultaneously a small epithelioma, a wart, and an area of healthy skin, the epithelioma started to break down after three exposures and became inflamed; the wart resisted longer, but finally atrophied, and showed reaction in a week; while the normal skin did not react for about a fortnight. This selective action of the rays should certainly be made use of, provided that we can in any way measure the dosage accurately enough to produce the required reaction when desired. This is clearly not work which can be left to the working mechanic or the

[1] *Semaine méd.*, June 10th, 1903.

[2] *Scottish M. and S. J.*, 1903, xii. 265.

electrician, and the employment of such by the profession should be entirely discouraged.

Speaking above of the reported "cures," I added inverted commas. That an ulcerous process will cicatrise over, that a tumour which has been growing rapidly and is painful retrogresses and loses its pain and tenderness, becoming smaller and softer, perhaps becoming no longer distinguishable, would seem to justify the term, ordinarily speaking; but so often in cancer has the most radical removal been disappointing in its ultimate results, that until some "five-year limit" has passed I should personally prefer to speak only of "retrogression." That this retrogression will occur in some cancers treated by the rays is reported upon all hands. I have personally seen nodules retrogress and the general health of the patient improve considerably. In some reported cases flesh has been gained, appetite returned, and the powers of the body restored in a wonderful way; but in others the most patient, careful, and skilled treatment has not had the slightest effect upon the condition. What this variation means is a question for the radio-therapeutists to solve. It may be a variation in treatment, an indiosyncrasy in the patient, the degree of malignancy, or the extent of diffusion of the disease.

In one's own limited experience it is easy to recognise that patients differ very markedly in their reaction to the X-rays. One of my own cases is of interest in this connection. It was a case of lupus vulgaris involving the right side of the neck and face, and for which an operation had been performed previously, resulting in paresis of the seventh nerve. She also had a patch of lupoid ulceration of the hand. I treated these two parts together, arranging them so that as nearly as possible they were equi-distant from the tube. Although one would naturally expect the skin of the face to be more easily affected than that of the hands, the reverse proved to be the case. Indeed, to produce a reaction on the face I had to give much longer exposures than I have had to do in other patients. Whether this muscular paresis had any secondary action on the skin, and hence in some way obstructed the vasomotor reaction, is difficult to say, but the case serves as an instance of how

patients may not only differ from one another, but two parts of the same body may react differently. Some patients do not seem to get beyond the first stage of stimulation, and the tumour takes on rapid growth: even, apparently, more or less normal epithelium may be stimulated by the rays and become epitheliomatous. That growth may not only be procured, but also that nutrition may be maintained, is a point alluded to by Codman,[1] who, after raying a case of massive malignant tumour of the breast, could find no trace of degeneration in the centre as is usual. He attributed it to the nutritional effect of the rays. But simultaneously the activity of the surrounding tissue cells is promoted, and the appearance of shrunken cancer cells in the granulation tissue seems to be the outcome of the healthy tissues invading the cancerous. If, however, the dose could be so accurately increased as to depress the malignant cells while the healthy cells were still only excited, then should we have a means at our disposal of successfully treating cancer.

If this is successfully carried out a retrogression follows, and unless an error is made in dosage subsequently a "cure" becomes possible. At the present date, however, our methods of determining accuracy of dosage are so inadequate that, if I may be allowed the expression, a retrogression is a fortunate accident.

In rodent ulcer the balance is not quite so delicately swung, owing to the lower malignancy of the tissues. But even here we meet fulminating cases which suddenly become abnormally active, and the constitutional disturbances are severe. The patient becomes sallow in complexion, with weak, rapid pulse, appetite poor, and feels intensely weak. "*Cachexia*" has become acute, the cancerous products being absorbed with consequent toxæmia.

The evidence of the microscope does not disprove this theory of the action of the rays, though it is somewhat conflicting. For while Shattock[2] has examined a tumour which had been under the rays for three months, and has found no change attributable to the rays either macro- or microscopically,

[1] *Hospital Mag.*, May, 1903.

[2] *Lancet*, 1902, ii. 1,541.

other observers[1] have observed irregular behaviour of cells, indicating degeneration in some form or another according to the degree of reaction obtained.

Little has been done up to the present in primary and operable cases of cancer, and there seems to be as yet little excuse for so doing, judging by results. But yet some cases have been recorded, and Morton,[2] who has had a large experience in X-ray work, is now recommending the treatment of cases before operation as well as after. He does not believe that "valuable time will be lost," and provided that the X-ray treatment be only adopted so long as the patient makes decided progress towards recovery, he holds that it may be used in primary cases without operation. He has seen in breast cases infected, indurated, swollen and sensitive lymphatics and glands become to all intents and purposes normal. "What," he asks, "better preparation can there be for operative procedure?" He even goes further than this, and states that "cancerous disease in its incipiency, when not too deeply placed, is decisively arrested in its growth and caused to disappear." Although such a hopeful view of the case has not been substantiated by any cases I have met with personally, it is only fit in a paper like the present to mention the confidence felt in the treatment in some quarters.

Dr. Bashford,[3] of the Cancer "Research Fund," gives his opinion as follows:—"There is a general consensus of opinion that many superficial rodent ulcers, even if very extensive and of long standing, can be healed completely by X-rays alone. Recurrences occur in 20 to 40 per cent. of cases, but these are amenable to treatment as the primary conditions were."

Complete healing is reported in 141 out of 216 cases = 65 per cent. successes; improvements in 43; no benefit in 16; disease aggravated in 3 cases.

As far as malignant growths other than rodent ulcer are concerned, he says:—"The results so far brought to our notice do not establish the efficiency of any of these measures (to wit, the

[1] Ellis, *Am. J. M. Sc.*, January, 1903; Scholtz, *Brit. J. Dermat.*, 1902, xiv. 397; Carl Beck, *Ibid.*, p. 399; Stewart, *Med. Rec.*, 1903, lxiii. 837, and others.

[2] *Med. Rec.*, 1903, lxiii. 845. [3] *Brit. M. J.*, August 8th, 1903.

Finsen light, high-frequency electric currents, and X-ray) as curative agents in sarcoma and carcinoma. The whole question is *sub judice*."

However, if we are not to look forward actually with confidence towards recovery in cases of cancer, we may see any of the following results which Morton has given in a summary:—

1. Relief from excruciating pain and constant suffering—often immediate.
2. Reduction in size of new growths.
3. Establishment of process of repair.
4. Removal of odour if present.
5. Cessation of discharge.
6. Softening and disappearance of lymphatic nodes.
7. Removal of cachectic colour and appearance of skin.
8. Improvement of general health.

And as such results may occur, the rays must be acknowledged a place as a palliative, and as such a valuable addition to our armamentarium.

A CASE OF TUBAL GESTATION PRODUCING SEVERE HEMORRHAGE WITHOUT RUPTURE,

ASSOCIATED WITH THE PRESENCE OF AN ACCESSORY FALLOPIAN TUBE.

BY

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THE following case of extra-uterine gestation presents several points of great interest, both clinically and pathologically, which make it worth recording.

The patient, a married woman, aged 24, had had one child three years before. Her last regular period was January 28th, 1903: it lasted four days. Nothing further until March 9th,

when an irregular uterine bleeding began and continued until the operation, March 25th.

March 20th.—Began to have intermittent pains, chiefly in the right lower abdomen, which got worse for the next three days. The breasts have become full and tender.

March 23rd.—Pain has become much more severe, and patient feels very ill. A swelling and resistance can be seen and felt extending three fingers' breadth above pubes. Cervix is pushed forwards. Vagina and cervix are dark blue. There is a soft irregular fulness in Douglas's pouch, extending up behind and to the right of the uterus. Uterine sound passed 2½ inches with the concavity forward in front of the swelling. The pulse was 124; temp. 101° F.

She was kept in bed and watched for thirty-six hours, but the swelling and pain becoming worse, and the pulse and temperature remaining about 120 and 101° F., it was decided to operate, as it seemed clearly a case of extra-uterine gestation in which hemorrhage was continuing in spite of rest.

March 25th.—Laparotomy. A large quantity of dark semi-liquid blood-clot, together with some quite fluid blood, was found in the lower abdomen and filling up the pelvis, which was roofed over by an unusually large sigmoid flexure of the colon. The right Fallopian tube was enlarged and soft, and its distal end was buried in the deep portions of blood-clot behind the uterus. The right tube, ovary, broad ligament and all loose clot were removed. The pelvis was swabbed out with dry sponges and the wound closed without drainage. The patient recovered without any drawback, and is now quite well.

The specimen, which has been cut open after hardening by Kaiserling's method, shows the ampulla of the right Fallopian tube distended by a mole in which disorganised embryonic structures can be distinctly seen. The outer third of the tube is swollen, but its lumen is quite distinct, and opens by a wide and patent ostium surrounded by engorged fimbriæ. No rupture of the tube is found either towards the peritoneum or the broad ligament. The ovary shows a well-marked corpus luteum of pregnancy.

It is evident that the hemorrhage could only have occurred by a gradual "blood-drip" from the open ostium of the tube. It is now well recognised that the hemorrhage in the early stages of tubal gestation is brought about, not by mere mechanical distention and rupture of the tube and of blood vessels, but by an erosion of the tubal walls and vessels by the embryonic trophoblast. The ovum, in fact, does not occupy the lumen of the tube, but embeds itself in the wall of the tube in the submucous layer. And it is the scantiness of this layer and its

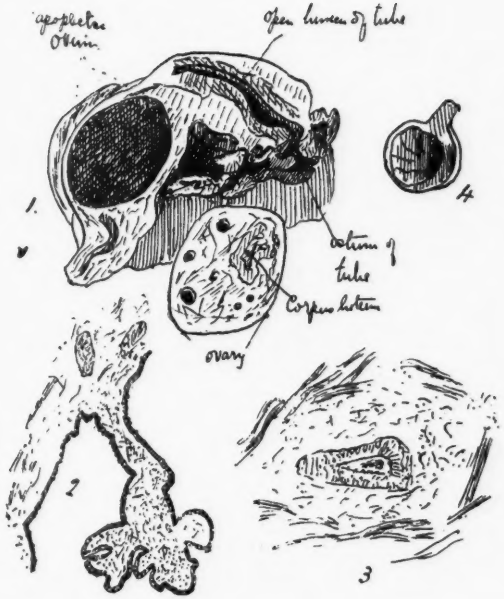
inability to provide the adequate amount of decidua that leads either to the opening up of blood vessels and the formation of a mole or the perforation into the peritoneal cavity. Abundant evidence and illustrations of these facts are brought forward by Andrews in the *Journal of Obstetrics and Gynæcology* for 1903.

In addition to the gravid tube two other bodies were found in the blood-clot. One, about the size and shape of a small grape, proved to be an encapsuled blood-clot surrounded by organised fibrin. This was probably the first blood which escaped from the tube, and shows that hemorrhage must have begun in small quantities some time before symptoms developed.

The other, which is figured of proportionate size, is a stalked globular mass about three-quarters of an inch in diameter. It is lined by a smooth membrane which is thrown into several distinct folds. The wall of this little body consists of unstriped muscle and loose areolar tissue. The lining membrane consists of one or two layers of columnar epithelium which is produced into miniature plicæ exactly similar to the plicæ in a Fallopian tube. The apparently solid stalk has a central cavity which contains some free blood corpuscles. This cavity is also lined by elongated columnar cells. The structure is an accessory Fallopian tube, which Kussmann has shown to be the remainder of the pronephric tubules. The presence of free blood in the lumen of the stalk of this accessory tube probably shows that it was connected with the lumen of the gravid tube when the latter was filled with blood, and it was detached in the manipulations of the operation.

Three somewhat similar cases of dilated accessory Fallopian tubes are figured and carefully described from the Museum of the Royal College of Surgeons by Sampson Handley in the *Journal of Obstetrics and Gynæcology* for 1903.

In conclusion, it is of considerable interest to note the association of tubal gestation with the occurrence of a congenital malformation, such as the presence of an accessory Fallopian tube.



1.—*Gravid tube with ovary cut in longitudinal section. Half natural size.*

2.—*Section through one of the plicæ of the accessory tube (⅓-in. obj.).*

3.—*Section of "stalk" of accessory tube, showing central canal containing some blood debris. Also shows layers of unstriped muscle.*

4.—*Accessory tube cut open. Half natural size.*

ETHYL CHLORIDE AS A GENERAL ANÆSTHETIC.[1]

BY

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ETHYL CHLORIDE, which until recently had been chiefly employed in England for the production of local anæsthesia by freezing, was given by Heyfelder as a general anæsthetic so long ago as 1848, while dental surgeons have for years noticed occasional cases of general anæsthesia when using ethyl chloride to freeze the gum prior to tooth-extraction.

In 1880 ethyl chloride was investigated by a committee of the British Medical Association and was condemned, probably owing to faulty methods of administration. During the last seven years it has been employed with increasing frequency in different parts of the Continent.

McCardie, in an admirably practical paper which appeared in the *Lancet* of April 4th, 1903, was one of the first to demonstrate that chloride of ethyl, *administered from a closed inhaler*, gave results which placed it in the front rank of general anæsthetics.

In the spring of 1903 I began to employ ethyl chloride, but had only written accounts of its administration to work on, since none of my friends had at that time used it as a general anæsthetic. Since then I have administered it to 150 patients, either alone or as a preliminary to ether, and in three cases as a preliminary to chloroform. Two patients developed asphyxial symptoms, probably due to over-dosage, but caused little anxiety as to ultimate recovery.

At the South Devon Hospital at the present time the house surgeons find ethyl chloride very useful and time-saving in cases requiring rapid and short anæsthesia, such as the setting of fractures and minor operations in the wards, especially at night.

[1] Read before the South-Western Branch of the British Medical Association on October 7th, 1903.

In my private work I find ethyl chloride an admirable substitute for nitrous oxide. Infants and old people take it well, my youngest patient being aged 14 days and my oldest 73 years.

APPARATUS REQUIRED.

Any form of ether inhaler possessing a bag is sufficient. I have given ethyl chloride from an Ormsby, a Rumboll-Birch, and a Clover, the large-bore inhalers being slightly the better because of the smaller tendency to cyanosis.

It is immaterial into which part of the inhaler the liquid is sprayed. I have had equally good results with the anæsthetic sprayed into the facepiece, the upper part of which must contain a sponge, into the body, or into the bag of the inhaler. I usually, on the ground of convenience, spray the liquid into the bag, which is then attached to the inhaler. The rubber of the bag is not injured by ethyl chloride. The body of the inhaler contains 1 to 1½ oz. of ether, or occasionally chloroform, for the continuance of the anæsthesia.

DOSAGE.

For a child 3 cubic centimetres
For an adult 5 to 7 cubic centimetres } sprayed in one dose.

For continuing the anæsthesia, 2 or 3 cubic centimetres every two or three minutes, with frequent breaths of air according to the colour of the patient and the state of the pupil, should be given, similarly in fact to administration of ether.

My longest administration of ethyl chloride alone lasted thirty-five minutes and cost nearly four shillings, which is far too expensive for ordinary work.

Ethyl chloride, as usually put up in graduated glass tubes, has little tendency to decompose; McCardie has successfully employed a stock eighteen months old.

INDUCTION OF ANÆSTHESIA.

Given from an ether inhaler fitted tightly to the face, anæsthesia is usually complete at the end of one minute. If anæsthesia is not complete in one and a half minutes, the reason is that either air is being admitted, or too little ethyl

chloride has been used, most probably the former. Struggling is usually absent, but if present is easily controlled. At the end of one to one and a half minutes the patient is snoring gently, with widely-dilated pupils, loss of corneal reflex, and relaxed muscles. A rash, similar to that of ether, quickly appears, and is most marked on the neck and shoulders. When seen for the first time the sudden insensibility with enormous pupils is very striking.

McCardie has estimated the average duration of ethyl chloride anæsthesia to be seventy-one seconds, which, compared with the average duration of nitrous oxide anæsthesia, given by Hewitt as thirty seconds, gives an advantage in favour of ethyl chloride of forty-one seconds. Return of consciousness is rapid and complete.

Like ether, ethyl chloride, from its stimulating properties, occasionally produces a copious flow of saliva and mucus.

CONTRA-INDICATIONS.

McCardie considers that the only contra-indication to the use of ethyl chloride is narrowing about the larynx, and, with this one exception, I have given it to all kinds of patients for most of the ordinary major and minor operations without the occurrence of dangerous or serious symptoms either during or after anæsthesia.

CONTINUATION OF ANÆSTHESIA.

When the anæsthesia has to be prolonged I usually pass from ethyl chloride to ether, which is placed beforehand in the body of the inhaler with the indicator at 0. Breaths of air must be given according to the colour of the patient while the indicator is being rapidly advanced to between 2 and 3. The transition from ethyl chloride to ether is much easier and less liable to be marked by partial return of consciousness than is the transition from nitrous oxide to ether.

If chloroform is necessary from the nature of the operation, I either change from ethyl chloride to ether and from ether to chloroform, or pass from ethyl chloride direct to chloroform, commencing with chloroform in the body of the inhaler, the

indicator being at 0, and, as soon as ethyl chloride anæsthesia has been induced, remove the bag and gradually advance the indicator to 1 or 1½, according to the state of the patient.

EXPENSE COMPARED WITH THAT OF NITROUS OXIDE.

Working with nitrous oxide at six shillings per 100 gallons, and allowing seven gallons for each patient, one nitrous oxide anæsthesia costs 5.13 pence, and with ethyl chloride refills at two shillings and ninepence per fifty cubic centimetres, one ethyl chloride anæsthesia costs 4.71 pence—a difference in favour of ethyl chloride of .42 of a penny, or three shillings and sixpence on each hundred administrations.

RISKS TO LIFE.

No drug sufficiently powerful to produce unconsciousness can be absolutely free from risk. Luke[1] says, "Seitz alone has published records of 12,500 cases with only one death. In all the fatalities which have occurred under ethyl chloride—and there are only four or five cases on record—the patient has been suffering from some grave cardiac or respiratory disability, and as Dr. Hewitt puts it in the September number of the *British Dental Journal*, we are now entitled to consider that 'ethyl chloride is a comparatively safe anæsthetic,' as safe, all things considered, as ether. I should now put the mortality at something between 1 in 10,000 and 1 in 15,000; but of course, as with all anæsthetics, much depends on the experience of the administrator," and later says, "Employed in its own sphere, namely, for inducing anæsthesia only prior to ether or chloroform, and for brief dental or throat operations, ethyl chloride is undoubtedly very much safer and more convenient than chloroform."

GENERAL CONCLUSIONS.

Ethyl chloride, given for short operations, produces an anæsthesia which lasts more than twice as long as that of nitrous oxide. In short dental operations, ethyl chloride, by producing muscular relaxation, does away with the preliminary gagging, which to many patients is the most objectionable part of nitrous oxide anæsthesia.

[1] *Brit. M. J.*, 1903, ii. 951.

From its portability and power of rapidly inducing a general anæsthesia which is followed by quick recovery and slight after-effects, ethyl chloride bids fair to come into general use, especially in private and country practice, and, as a preliminary to ether or chloroform, appears likely to largely supersede nitrous oxide.

NOTE ON THE SUBSEQUENT HISTORY OF A CASE OF PYLORECTOMY.

BY

A. W. PRICHARD,

Surgeon to the Bristol Royal Infirmary.

IN May, 1902, I read notes on a case of pylorectomy before the Society, which are reported in vol. xx., p. 285, of the *Medico-Chirurgical Journal*, 1902, and the case is given *in extenso* in the *Lancet* of August 23rd, 1902.

The patient recovered, and went on very well for sixteen months, having resumed her duties as cook, and complaining of nothing except occasional attacks of constipation, one of which was rather serious, but it yielded to aperients and enemata. She was able to eat and digest ordinary food, and gained flesh and grew quite fat.

On September 7th, 1903, she was re-admitted to the Infirmary complaining of pain on the right side of the abdomen, and she was looking ill. There was constipation, some distension of the abdomen, and tenderness. The case looked like one of appendicitis, but under the anæsthetic resistance could be felt right across the abdomen. I made a median incision, and could feel a mass filling the pelvis. On investigating this with my finger, pus in considerable quantity welled up from the region of the appendix. So I put a drainage tube through the parietes in the right flank and another in the posterior vaginal fornix. The patient never rallied, and died unrelieved three days after the operation.

At the autopsy there were many adhesions, but little fluid was found in the abdominal cavity. These adhesions were especially marked in the region of the pyloric end of the stomach, where there was new growth stretching along the lesser curvature. The lower coils of intestine were adherent, and there was across the pelvis a sarcomatous growth involving both ovaries. In the front part of the right ovary and adjacent to the cæcum was an abscess cavity emptied of pus. The cæcum was infiltrated with sarcoma. The appendix was normal.

The specimens shown (at the November meeting, 1903) were *(a)* The original pyloric growth removed in April, 1902; *(b)* The stomach and duodenum, showing the union of the latter to the shortened stomach; *(c)* The cæcum infiltrated with sarcoma; *(d)* The ovaries and uterus.

Notes on the Examination of the Parts Removed, By Dr. E. H. Edwards Stack.

Sections of growth removed by Operation.—On longitudinal section the growth is seen to invade the whole circumference of the pylorus, extending about an inch and a half along the stomach wall, where it tapers off in the normal wall, and about half an inch towards the duodenum, where the edge comes to a more abrupt termination. The muscular coats are seen to be very much hypertrophied, and show up as clear strata amidst the opaque, tough white mass of the rest of the growth; no superficial ulceration can be made out; the lumen of the pylorus is narrowed to about the size of a lead pencil.

Microscopically the growth varies in different parts. In some places the whole section shows tough, fibrous tissue, with a great tendency to curl in strands like elastic tissue; in others there are here and there amongst the masses of cells some round, some oval, and some oat-shaped—these are larger and more definitely spindle-shaped than inflammatory cells could be. These masses extend close up to the bases of the glands. The glands are well shown in active state, the cells being much swollen and granular, and in places large "goblet" cells are present. The specimen is therefore one of sarcoma of the pylorus.

Section of the recurrence in the stomach shows that it is sarcoma, and without the excess of fibrous tissue shown in the original tumour.

Section of the ovary shows ordinary round and spindle-celled sarcoma.

MORTALITY AND SICKNESS IN THE CITY OF BRISTOL FOR THE YEAR 1903.

BY

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Medical Officer of Health, Bristol.

THE general death rate for the year 1903, uncorrected for sex and age distribution, is 14.22 per 1000 living, the lowest rate yet recorded for the city. While this is satisfactory, it is more important to note that the average rate for the past five years has not exceeded 17.1, a point at or below which, as suggested by Farr, the causal influence of general insanitary conditions upon the death rate apparently ceases, lower rates indicating a response to abnormally favourable conditions, such as, for example, the continued absence of extremes of heat or of cold, with their respective fatal influence upon the very young and the aged.

The infant mortality rate, a delicate index to the sanitary balance of a population, is 116.3, the lowest recorded rate in the city. The infantile rate usually compares very favourably with that for the large towns of England; but the remarkable drop in 1903 is no doubt due to the continuous low temperature in the late summer and autumn, to the unusually mild winters, and to the absence of any fatal infantile complaint such as measles, which proved so fatal in 1902.

THE PRINCIPAL EPIDEMIC DISEASES.

It may be of interest to indicate the actual mortality for five years (1898-1902) from seven diseases known for convenience as "zymotic."

Diarrhœa	1102
Measles	965
Whooping Cough	576
Diphtheria	493
Enteric fever	204
Scarlet fever	168
Small-pox	1

Small-pox.—During the year 1903 small-pox showed considerable activity, and in the first six months of the year was introduced into the city on thirteen occasions up to and including a case on June 4th. This corresponds to an introduction every fortnight. And these thirteen introductions, which affected practically every sub-district of the city, including Avonmouth (except St. George), and, owing to the extremely mild character of the disease, had generally become multiple before recognised and notified, resulted in 44 cases and 3 deaths. At the end of June the city remained free from any infection of small-pox. Seven of the thirteen introduced cases were reported early and were sterile of result. After June only two further introductions occurred, one from near Manchester, the other from Smyrna; no extension resulted.

Our local experience of small-pox is that it is the only disease (perhaps excepting typhus) in which one may count upon absolute success from the adoption of rational measures of control; a result partly of its straightforward habits, facilitating inhibition of its lines of spread, partly of its obligate parasitism and complete death upon exhaustion of soil, thus excluding "carrier" cases, and partly of its characteristic onset and eruption, recognisable to the initiated, in practically every case, however abnormally mild. No return case of small-pox has ever occurred within my experience.

Diphtheria.—This is an example of a far different disease. Probably always personally carried and spread; apparent recovery, though it indicates individual immunity, by no means excludes continued growth of the organism in some portion of the respiratory tract, with a high degree of potential danger to others. During the year 119 deaths have resulted from this

disease, compared with 189 in 1902: there is, therefore, reason to believe that the invasion of the city by the virulent form of diphtheria, which began in 1900 after a long period of immunity extending over more than twenty years, is on the decline, and that succeeding years will show progressively satisfactory improvement.

Scarlet Fever.—The prevalence of this disease, though widespread, is also accompanied by a declining mortality; only 49 deaths resulted, compared with 66 in 1902. The epidemic wave which began to rise in 1900 has been maintained over a longer period than was usual before extension of the city in 1897, owing to the addition of 100,000 persons in districts largely composed of the working classes, yielding with their families much additional susceptible material to which the infection extends from the old city or *vice versâ:* there is now, in fact, a double city to reckon with, and consequently a prolonged period of epidemic prevalence.

Enteric Fever.—The number of deaths from this disease in 1903 was 21, corresponding to a lower rate than has occurred for the past twelve years. As an index of general sanitary condition this rate is of some importance.

Phthisis.—The number of deaths from pulmonary consumption registered during the year was 466, while the seven principal epidemic diseases caused only 375 deaths in all. The Council has resolved to adopt during 1904 a system of voluntary notification of phthisis, so that useful advice may be distributed where most needed, and disinfection of premises and infected articles secured. Twenty beds have been secured at the Winsley Sanatorium for the isolation and treatment of suitable cases from the city not belonging to the pauper classes.

A bye-law against spitting in public rooms and conveyances has also been adopted.

Measles.—Only 11 deaths were reported in 1903 from this disease, which caused 411 in 1902.

Whooping Cough caused 65 deaths in 1903, compared with 115 in 1902.

Puerperal Fever.—Fourteen deaths are returned from this cause, a smaller number than in any of the past four years.

The Midwives Act, 1902.

This Act came into force on April 1st, 1902, and is administered by the City Council, who have delegated the powers and duties under the Act to the Watch Committee.

Under this Act it becomes a punishable offence:—

1. After the 1st of April, 1905, for any woman not certified under the Act to take or use the name or title of Midwife, or any name, title or description implying that she is certified or is recognised by law as a midwife.

2. After the 1st of April, 1910, for any woman not certified under the Act to practice as a midwife otherwise than under the direction of a qualified medical practitioner.

The following provision is made for existing midwives.

Any woman who, within two years from the date of the Act coming into operation, claims to be certified under the Act, shall be so certified provided she holds a certificate in midwifery from the Royal College of Physicians of Ireland, or from the Obstetrical Society of London, or the Coombe Lying-in Hospital and Guinness's Dispensary, or the Rotunda Hospital for the Relief of the Poor Lying-in Women of Dublin, or such other certificate as may be approved by the Central Midwives Board, or produces evidence, satisfactory to the Board, that at the passing of this Act she had been for at least one year in *bonâ-fide* practice as a midwife, and that she bears a good character.

Medical practitioners might advise midwives as to the provisions of the Act, and applications for Registration should be made to the Town Clerk.

Progress of the Medical Sciences.

MEDICINE.

Henoch's Purpura.—A form of purpura occurring in children was described many years ago by Henoch, which, although not very uncommon, has not attracted much attention. Dr. Hale White has recently given a clinical lecture upon this disease,[1] illustrated by notes of two cases. The most characteristic

[1] *Guy's Hosp. Gaz.*, 1904, xviii. 44.

feature of the disease is the presence of abdominal pain of severe character, associated with vomiting and sometimes diarrhœa. Purpuric spots on the skin may precede or follow the abdominal pain. Sometimes there are hemorrhages from the mucous membranes, and hæmatemesis, passage of blood by the rectum, or hæmaturia may occur. As in some other forms of purpura, there may also be occasionally some pain and swelling of the joints. Another noteworthy feature is the liability of the purpura and other symptoms to recur, and Dr. Hale White refers to an interesting case in which a girl, aged 14, during a long period had one attack every week. It is scarcely necessary to remark, however, that recurrences at such short intervals must be extremely rare. Occasionally the vomiting may be so severe as to give rise to the idea that intestinal obstruction is present. Illustrations of this will be briefly referred to below. In passing, however, it may be mentioned that Mr. J. S. Judson[1] records a case in which stercoraceous vomiting was associated with purpura, thought to be rheumatic in origin. The patient was slightly older than the majority of those in which Henoch's purpura occurs. He was 17, and is said to have been ill with "rheumatism of subacute character" for ten days before the purpura appeared. At the time of admission to the District Infirmary, Ashton-under-Lyne, he was much collapsed with a quick, thready pulse. He complained of pains in the epigastric region and around the umbilicus, but there was no abdominal distension. A purpuric rash was present over the legs and forearms. The following day the vomit is said to have been "distinctly fæcal." The question of laparotomy was discussed but no operation was performed, and the symptoms subsided. If it were true rheumatism from which this boy suffered, and the purpura true rheumatic purpura, it is obvious that abdominal symptoms similar to those which occur in the disease known as Henoch's purpura may also arise in the course of peliosis rheumatica. The severity of the vomiting, however, in this case is the point of particular interest, especially as cases of Henoch's purpura have been recently described, in which intussusception was considered to be present.

G. A. Sutherland[2] reports an interesting example, but before noticing it in detail possibly the description by Dr. Sutherland of the symptoms referable to the abdomen present in Henoch's purpura may not be out of place. He says, "The abdominal pain is severe, of a colicky nature, and is referred to the umbilical, the epigastric, or the right inguinal regions. The patient cries out, tosses about, presses the hand on the abdomen, or presses the abdomen on the bed. Sickness soon follows of an exhausting nature, and frequently the vomited material is blood-stained or consists of pure blood. The tongue rapidly becomes coated, the breath is offensive, and all appetite is entirely lost.

[1] *Lancet*, 1903, ii: 824. [2] *Brit. J. Children's Dis.*, 1904, i. 23.

At first constipation is marked, but in a few days, with or without the employment of aperient medicine, diarrhœa sets in, the motions are offensive and blood-stained, and soon pure blood is passed—it may be in large quantity—from the bowels. The act of vomiting, or the evacuation of the bowels, seems to give temporary relief to the abdominal pain. The abdomen is usually retracted, tenderness may be present on pressure over the region of the colon, especially if tenesmus is a marked feature, but as a rule there is nothing abnormal to be detected on physical examination. Such an attack may last for a few hours or a few days, and then there is a gradual remission of the symptoms until the next attack."

The following are a few facts connected with a case under the care of Dr. Sutherland thought at one time possibly to be one of intussusception. A boy, aged 5 years, was admitted into the Paddington Green Children's Hospital for abdominal pain and vomiting. The bowels acted regularly at first, but then became blood-stained, and later pure blood was passed. The sickness ceased, but the abdominal pain was constant. At the time no purpuric spots were present. The abdomen was very resistant, and an examination was made under an anæsthetic, but nothing to account for the pain was found. The following day an operation was performed, and portions of intestine were discovered thickened by extravasated blood. For a few days after the operation the boy continued in a serious condition, but eventually the symptoms gradually subsided, and after a few recurrences of the "vomiting, purpura, melæna, abdominal pain, and extreme lethargy," eventually recovered, and left the hospital. It should be added that in this case purpuric spots appeared for the first time a few days after the operation had been performed.

A similar case is recorded in the same *Journal*[1] by Mr. Harold Burrows. A boy, aged 11 years, was admitted into the Bolingbroke Hospital, with a note from a doctor in which he was said to be suffering from "fæcal vomiting," and that he was "passing blood by the bowel" and "probably had an intussusception." The mother said that on the morning of the day of admission, after the boy had been "out of sorts" for some days, he was seized with "violent pains in the abdomen, and shortly afterwards passed a formed motion, with about a table-spoonful of blood, and was sick, the vomit being dark brown and smelling just like a motion." Mr. Burrows says that when he saw the boy he found him to be pale with an "abdominal" expression, and constantly moaning with pain which appeared to be intense, and was mainly localised in the epigastrium. The abdomen was nearly motionless, and the muscles were rigid, especially in the lower parts, and there was general tenderness all over the abdomen. The boy was anæsthetised, but nothing that threw any light upon the case

[1] *Brit. J. Children' Dis.*, 1904, i. 28.

was discovered. An exploratory laparotomy was therefore performed, but nothing found except some congested patches of small intestine. On the following day a careful search was made for petechiæ, and some small purpuric spots were found on the backs of the elbows, on the buttocks, and on each leg. For three weeks after the operation the boy appeared to be progressing favourably, except that there were frequent eruptions of purpuric spots. At the end of that time, however, he was again seized with severe abdominal pains, and passed shortly afterwards about 1½ ounces of blood from the bowels. "The pain was intense," but 15 minims of tincture of opium, given by the rectum brought some relief. Three days later there was a general eruption of purpura. After this second attack, however, he steadily improved, and when seen four months later appeared "the picture of health."

It may be interesting to note that a few years ago a somewhat similar case occurred in the Bristol Royal Infirmary, under the care of Dr. J. E. Shaw, which, however, ended, as Henoch's purpura very rarely ends, in death. The boy, aged 3½ years, was admitted with severe abdominal pain and passage of blood by the rectum, for supposed intussusception. He was examined under an anæsthetic, but nothing to account for the pain discovered. In his case an exploratory operation was not performed, and he left the Infirmary apparently well, to return, however, in three weeks with a recurrence of the symptoms which rapidly ended fatally. At the autopsy we found the walls of the whole length of the small intestine and of the ascending colon infiltrated with blood, and a large quantity of blood in the lumen. There were in this case no hemorrhages elsewhere in the body and no purpuric spots on the skin.

Dr Raymond Crawfurd[1] has an article in which some points in connection with the subject of Henoch's purpura are referred to. His paper does not deal particularly with the unusually severe features of Henoch's purpura which we have been noticing, but, in passing, he mentions a case when he had known that "the diagnosis of acute intestinal obstruction was actually made until the appearance of the familiar symptoms cleared the picture." The special point upon which Dr. Crawfurd lays stress is that Henoch's purpura is scarcely a disease by itself, but is a form of erythema exudativum multiforme, in which abdominal pain is a marked symptom. He gives notes of three cases to illustrate his contention. Thus in a boy, aged 16, who sometimes had abdominal pain and vomiting associated with purpura, also suffered at other times from a non-purpuric erythematous rash. It is interesting to note that this boy sometimes had swelling of the joints with a rise of temperature associated with the purpuric attacks, an association that might, perhaps, lead it to be described as rheumatic purpura, a circumstance which reminds us of a case mentioned earlier in this

[1] *Lancet*, 1903, ii, 1154.

review. On the other hand, bleeding from the gums was also present—a form of hemorrhage which, it is needless to say, reminds us of scurvy.

It is not a new fact, however, that rashes other than purpuric spots may occur during the course of Henoch's purpura, and that some swelling of the joints may occur has frequently been noticed. It seems quite reasonable to suggest, as Dr. Crawfurd does, that Henoch's purpura is merely erythema exudativum multiforme, in which the abdominal features are especially well marked, but his cases seem to differ little from other recorded cases of the disease which bears the name of Henoch. Many erythemata are no doubt due to toxins absorbed from the alimentary canal, and Henoch's purpura, like these erythemata, is thought probably to be a result of such poisoning.

THEODORE FISHER.

SURGERY.

The cure of chronic Bright's disease by renal decapsulation. Important papers dealing with this operation have been published since the subject was discussed in the pages of this *Journal* in December, 1902, especially another from the pen of G. M. Edebohls, the pioneer of the procedure. We shall give below a resumé of the most important papers by that writer on the subject, endeavouring on their basis to place before our readers the results of the operation and its indications and limitations in so far as these matters can be at present estimated. Later we shall state the views of some other surgeons on the subject.

It will be remembered that Edebohls, having found that nephropexy with decapsulation for movable kidney associated with chronic Bright's disease led to a cure of the nephritis, conceived the idea that the decapsulation, not the nephropexy, was mainly responsible for the good results obtained, and that decapsulation acted by removing a barrier to the creation of a new and increased blood supply to the diseased kidney. The removal of inflammatory products by absorption and the restoration of health to the kidney seemed to be the direct results of this increased blood supply and the improved circulation in the organ.

In December, 1901,[1] Edebohls reported in some detail nineteen cases in which he had decapsulated kidneys affected with chronic Bright's disease. In sixteen of these nephropexy was also performed. The list included eight cases in which a cure of Bright's disease lasting from one to over eight years after operation had been obtained. In March, 1903,[2] the same writer published the results he had obtained in thirty-two additional cases, bringing the total number to fifty-one. This included all the cases he had operated upon to the end of the year 1902.

[1] *Med. Rec.*, 1901, lx. 961. [2] *Ibid.*, 1903, lxiii. 481.

Technique of the operation. Without going fully into the details of the technique of the operation as recommended by Edebohls, the following points are worth special mention: The patient is placed prone, with a cylindrical air-cushion supporting the abdomen. By this arrangement both kidneys become accessible without changing the patient's position. If possible the kidney is lifted out of its fatty capsule bed and delivered through the wound. The capsule proper is then incised along the convex border of the kidney, and reflected from each side to the hilum and cut away. The kidney is then dropped back into its fatty capsule and the wound of the parietes closed, usually without drainage. Both kidneys are operated upon at the same time, and the operation should be completed in the maximum time of one hour. Difficulty may arise from the great length and obliquity of the twelfth rib; from the firm attachment of the kidney in its normal site, in which case it may be impossible to expose more than the lower pole; and from the firm attachment of the capsule to the kidney in the cases of the interstitial variety of nephritis. Great care must be taken not to tear away pieces of the kidney. The best instrument for reflecting the capsule is the index finger of the rubber-gloved hand. Nephropexy should only be performed if symptoms due to the mobility of the kidney call urgently for relief. Ether has proved to be a satisfactory anæsthetic. The congestive effect of the anæsthetic on the kidneys is counteracted by the moderate escape of blood from them during the operation.

Condition of the patients operated upon, and the evidences of existing Bright's disease. In Edebohls's first table of eighteen cases all the patients were women varying between nineteen and forty-five years of age. In sixteen of these nephropexy, either unilateral or bilateral, as well as decapsulation, was performed. The author classifies chronic Bright's disease as follows, viz.: (*a*) As interstitial nephritis those in which the gross evidences of inflammation of the connective tissue predominated; (*b*) As parenchymatous those in which involvement of the secretory apparatus predominated; and (*c*) As diffuse nephritis those in which the parenchyma and connective tissue of the organ were involved in a fairly equal degree. These varieties of inflammation are said to be easily recognisable during operation after a little experience. In the first eighteen cases alluded to, the chronic Bright's disease was found to be unilateral in eight. In nine of the eighteen cases Bright's disease was only discovered a short time before operation by examination of the urine. We may take it for granted that these were not severe cases. The other nine patients were fully aware that they had had Bright's disease for periods varying from several months to over six years, and they had dropsy and uræmia in varying degrees.

In 1902 Edebohls operated on thirty-two cases, in all of which the chronic Bri s disease was of an advanced type.

Nearly all presented cardiac and vascular degenerations of greater or less degree—arterio-sclerosis, hypertrophy of the heart of all degrees up to the point of non-compensation, dilatation, pericarditis and endocarditis. Some had pleuritis and hydrothorax, some hemiplegia, and some characteristic retinal lesions.

Mortality of the operation. Of the fifty-one patients fourteen died at periods of time after operation varying between twelve hours and eight years. Seven of these deaths occurred at periods varying from two months to eight years after operation. The other seven followed the operation at periods varying from twelve hours to fifteen days, and represent the operative mortality in the fifty-one cases. Edebohls therefore writes that his operative mortality may be stated as 13⅝ per cent.; but in the first nineteen cases there was no mortality due to operation. In other words, the author lost seven cases out of thirty-two operated upon in 1902, which works out to a percentage of 21.87. Further, it may be noticed here that twelve patients, or 23.5 per cent., failed to survive the operation longer than one year and six days. The author points out that he was compelled to accept cases for operation in which a fatal result was almost a foregone conclusion. Some such cases, however, had made unexpected and surprisingly good recoveries. In fact, with two exceptions, the author had operated on every patient who had come to him desiring operation. One surgeon informed Edebohls that he had performed four decapsulations for chronic Bright's disease, and that each of the four had died promptly after the operation. These four operations represented exactly the half of the total experience of the surgeon in question in renal surgery.

The therapeutic results of renal decapsulation. Edebohls has been able to follow up the after-history in all but 3—*i.e.* in 48—of his 51 cases. Of these 48 cases, 24 at the time of writing—viz. March, 1903—could be considered available for estimating the final results of the operation. Of the 24 remaining, 3 had been lost sight of, 13 had died since operation, and 8 had only been operated on during the immediately preceding seven months, a period too short to give valuable data. Patients with chronic Bright's disease often improve temporarily, even for months at a time, either as a result of treatment or without treatment. The author considers, therefore, that to prove that cure or improvement is the result of renal decapsulation it must be shown: first, that cure or improvement follows the operation with practical uniformity; second, that a cure once obtained is, as a rule, lasting; third, that improvement attained by operation is steadily progressive in the great majority of cases. Judged by these standards, the author states that the therapeutic results have only been more or less unsatisfactory in 2 of the 24 patients available for the study of the question. One of these two cases, a patient who

had had the disease under treatment for six years before operation lost all albumin in the urine a year after operation, and remained free from albuminuria and in apparently perfect health for nearly four years; then, in 1902, the albumin and casts reappeared. Only one of her kidneys had been operated upon. The other unsatisfactory case improved for eight months after operation; then she had a series of exacerbations in association with an attack of diphtheria, and with two or three attacks of grippe. Of the remaining 22 patients, 10 were radically cured and 12 were greatly improved. One of the cured patients died after an operation for tubal pregnancy twelve months after the kidney operation. Her urine was normal at the time of this second operation. Thus nine patients remain now living in good health, with urine free from albumin, at periods varying from one year and nine months to ten years after operation. The author is of opinion that the following conditions must be fulfilled in a given case in order that it may be pronounced cured: The urine must remain free from albumin and casts, and the daily urea output be normal, or approximately so, for a period of six months following the verification of the disappearance of albumin and casts; and the patient must be free from the symptoms of chronic Bright's disease from which he or she previously suffered. The above nine cases fulfilled these conditions. Unfortunately the nine cases belong to the earlier group of nineteen cases published by Edebohls in December, 1901, in which the disease was of a milder type and always associated with mobility of the kidney, and it seems open to question if they should be placed in the same category as ordinary bilateral chronic Bright's disease. In the 1902 series of cases, all were inveterate cases of complicated and far-advanced Bright's disease. The final results of the 1902 series of cases will therefore be of more value than those given above in deciding whether the operation is to be recommended for ordinary cases. The author says that, taking into consideration the severity of these cases, the sum total of improvement presented by the surviving patients of 1902 must be considered remarkably gratifying, and gives rise to the hope that a number of them may figure in the list of cures in the next report, for a number of them appear to be on the high road to perfect cure. When cases improve after the operation the first effect on the urine is shown by an increased daily out-put of urea. For example, a daily excretion of six grams before operation has been known to increase to one of thirty to thirty-five grams within a month. The improvement in the excretion occurs rapidly in the first two or three months, but continues steadily after that period. The epithelial, waxy, fatty and pus casts disappear gradually in from a month to a year. Albumin usually persists for a greater or less time after the permanent disappearance of all casts. The patient's general health improves *pari passu* with that of the urine.

The selection of cases for operation. The precise limits of the disease beyond which renal decapsulation cannot avail to save the patient's life, cannot as yet be positively stated. In several cases the operation has proved a boon to patients by diminishing cardiac hypertrophy. But if cardiac and vascular changes have advanced too far ever to be made good or even improved, the operation becomes so dangerous that it is not to be advised. The mortality attending the operation will be that of the disease itself and its complications, for the operation is almost without danger when properly performed. Speaking in May, 1903,[1] Edebohls said that in his published articles he had tried to subdue his enthusiasm, but his results had been better than pictured; all patients had been relieved of their headaches and backaches, and the circulation and heart's action had been improved. He had had an opportunity of making serial sections of the kidneys operated upon four months previously. Enormously dilated blood vessels were shown penetrating the kidney from the fatty capsule.

Unilateral chronic nephritis. In his paper of December, 1901, Edebohls stated that the chronic nephritis affected both kidneys in nine cases and only one kidney in eight cases. The evidence of the disease being unilateral in six of the eight cases was derived from an examination of both organs at the operation by sight and touch. In the other two the patients recovered completely, although only the right kidney was operated upon. This evidence we consider weak. The author believes that this one-sidedness of the disease explains the chronic and mild course of some cases of Bright's disease. The healthy kidney continues to perform the eliminative work of both organs. The disease probably invariably becomes bilateral in the course of time. When a fatal result ensues the *post-mortem* examinations will practically always show bilateral disease. Hence the scepticism of physicians as to the existence of unilateral chronic Bright's disease. It will be interesting, in conclusion, to glance at some of the published views of other surgeons on the value of the procedures under consideration.

Ramón Guitéras (New York)[2] began to perform these operations in 1902 as a sceptic, and had refused to operate on many cases which he would now consider deserving of operation. He had sent a circular letter to ascertain the views of leading surgeons on the question. From the 150 answers received it appeared that those in favour of the operation and those against it were about equally divided. Over 100 cases of the operation had been reported—16 per cent. as cured, 40 per cent as improved, 11 per cent. as unimproved, and 33 per cent. as fatal. Many cases of albuminuria and cylindruria were not, properly speaking, Bright's disease. Movable kidney was often associated with this condition, and nephropexy might then absolutely cure it. It was generally recognised by pathologists that true

[1] *Med. Rec.*, 1903, lxiv. 475. [2] *Med. Rec.*, 1903, lxiv. 474.

Bright's disease was always bilateral. In some cases he had found evidence of nephritis of both kidneys by ureteral catheterisation and yet nephropexy on one side led to the common urine from both organs becoming free from the signs of Bright's disease, except that the percentage of urea did not come up to the normal. This might be explained by a sympathy between the two kidneys, like that between the two eyes (Pousson). He was not sure whether it was better to partially decapsulate and fix the kidneys or to entirely decapsulate and return them into the fatty capsule. According to Johnson, after decapsulation of the kidneys in dogs, a fibrous investment was reformed for the kidneys which macroscopically resembled the normal capsule. In cases of anasarca with a bad heart it was a question whether one should operate or not. The results in such cases showed that 50 per cent. died, 25 per cent. were unimproved, and 25 per cent. were cured or improved. He had never had the courage to operate in such cases.

A. H. Ferguson (Chicago)[1] reports sixteen cases of decapsulation, mostly combined with nephropexy, and that on one side only, for movable kidney and nephritis. The type of the disease was mild in these cases. He writes: "The results so far have been excellent and astonishingly prompt."

H. Kümmel and O. Rumpel (Hamburg)[2] regard it as extremely difficult during an operation on a kidney to diagnose its condition, unless striking naked-eye changes are visible, as in some examples of granular kidney. Those authors have investigated thirty-five cases of nephritis with the aid of cryoscopy, and twelve of these with the additional aid of the ureteral catheter. Nephritis, whether parenchymatous or interstitial, they have always found to be bilateral. They report three cases of decapsulation for the disease. One case, in which they decapsulated the left kidney only, derived no benefit, and died five months later of uræmia. The other two cases seemed to be benefited, though one was not observed long enough to be of any value in judging of the final results.

Jaboulay[3] relates a striking case of improvement after unilateral decapsulation. There had been albuminuria for a year or fifteen months before the operation; after that event it ceased in twelve days. The writer advances the hypothesis that these operations act by the traumatism they inflict on the sympathetic system situated in the renal pedicle. The rapidity of the improvement in the reported case is considered to be best explained by this theory.

F. G. Balch (Boston)[4] reports nine cases. The disease was of the chronic diffuse type. One case was probably cured, though it is too early to be sure of this. One was improving

[1] *J. Am. M. Ass.*, 1903, xli. 8.

[2] *Beitr. z. klin. Chir.*, Band xxxvii., Heft iii. 968.

[3] *Arch. gén. de Méd.*, November 17th, 1903; vide *Brit. M. J.*, 1904, i., Epitome, p. 10.

[4] *Boston M. and S. J.*, 1904, cl. 90.

eleven months after operation. Two cases a year after the operation showed little if any improvement. The other five died at varying periods after the operation, viz., one each at fourteen months, five days, three months, two months, and one at a period not clearly stated, perhaps three months. Thus the results in these nine cases, only two being improved, were not of a very gratifying kind.

Joshua C. Hubbard (Boston)[1] reports seven cases. One of these may be rejected, as the patient died of tuberculosis of the lungs and kidneys six months later. Of the six remaining cases four died two and nineteen days, and one and three months respectively after operation. In the remaining two cases the results were satisfactory, for in one, although there was a trace of albumin a year and four months after, there were no casts in the urine and the patient was free from symptoms; in the other the patient at the end of seven months had $\frac{1}{4}$ per cent. albumin, but felt well and was engaged in arduous work.

J. LACY FIRTH.

Reviews of Books.

Atlas and Epitome of Human Histology and Microscopic Anatomy. By Dr. JOHANNES SOBOTTA. Edited by CARL HUBER, M.D. Pp. 248. One hundred and seventy-one illustrations on eighty lithographic plates, and sixty-eight cuts in the text. Philadelphia and London: W. B. Saunders and Co. 1903.

To say that this is one of the best of Saunders's Hand Atlas Series is high praise. Being an illustrated text-book of histology with the technique omitted, it does not claim to be a laboratory hand-book. The text is in the American orthography, but readable and accurate; and the additions from the pen of the American editor are not unimportant. The great value of the book, however, rests upon the exceptionally fine lithographic plates. Since Klein and Noble Smith brought out their classic plates, nothing so good has been done in the way of a series of plates of normal histology. The colours are well chosen, and the registration in printing unusually accurate.

The majority of the subjects chosen are from the bodies of executed criminals obtained immediately after death—a welcome change from the sections of this, that, or the other from cats, rabbits or guinea-pigs, and of much greater use to the pathologist who wishes to refresh his memory of the human normal histology. In a book intended to teach normal histology to those entering the medical profession we require better and more illustrations

[1] *Ibid.*, p. 93.

of the cerebral cortex, the larynx and islands of Langerhans, resting mamma, etc. We also regret the entire omission of the names of the artists of whose pictures these plates are the reproductions.

The book is more remarkable from the very low price at which it is sold.

The Elements of Bacteriological Technique. By J. W. H. EYRE, M.D. Pp. 371. Philadelphia and London: W. B. Saunders and Co. 1902.

This book is intended to be a "laboratory guide for the medical, dental, and technical student." It is founded upon the author's notes for his own classes of practical bacteriology. It is a thoroughly practical book, every apparatus and manipulation being fully and carefully described. The illustrations are very numerous, and are simple, clear, and to the point, and will be found of great assistance to those who wish to make their own apparatus. As a reference book for methods and media it is excellent, and the information is well classified and easily found when required. It is not intended to be a reference book for running down and identifying any particular organism, but the methods of studying the properties of an organism that are being investigated are excellent. This book should find a place on the shelves of every clinical laboratory.

Aids to Physiology. By PEYTON T. B. BEALE. Pp. 239. London: Baillière, Tindall and Cox. 1903.

This is a revised edition of the old *Aids to Physiology*, by Professor Thompson Lowne, and is one of Messrs. Baillière's well-known series of "Aids to." There is a class of students to whom this book will inevitably appeal—those who strive to "commit to memory" only the absolute minimum required by the examiners. We have great pleasure in informing such that this book does not claim, nor indeed is it, a sufficient guide to any examination that leads to a medical qualification. Many points of difficulty to the student are simply set forth, but we miss many of paramount importance to the medical student, such as Pflüger's law and its explanation. It may be useful to pick up just before an examination as a refresher, but it will be of little use before this anxious period.

The Geography of Disease. By FRANK CLEMOW, M.D. Pp. xiv., 624. Cambridge: The University Press. 1903.

This may be a useful book of reference to medical men interested in tropical diseases, but we have been unable to discover many noteworthy facts not mentioned in good text-

books on medicine. It is interesting, however, to notice how widespread is a disease like rheumatism, and that it occurs in places as different as Greenland, Senegal, and South Africa. That chronic rheumatic affections occurred in Egypt in ancient days is well known from examination of the bones of mummies. Apparently in North Africa these chronic forms are still common, while acute articular rheumatism is rare. Rickets is a disease that we might perhaps suppose to be a disease of civilisation; but in some of the Pacific Islands it is said to be common, and in the New Hebrides the greater part of the children are said to be either rickety or scrofulous. The disease is said to be very rare in India, not uncommon in Burmah, but unknown in Siam. Apparently no very definite deductions in connection with its ætiology can be made from its distribution. Neither race nor climate seems to have a very marked effect. The writer, however, says "it would almost seem that a plentiful supply of pure air is of greater importance in preventing (and in curing) this malady than the nature of the diet."

A Manual of Surgical Treatment. By W. Watson Cheyne, C.B., M.B., and F. F. Burghard, M.D. Part VI., Section II. Pp. xxiii., 559. London: Longmans, Green, and Co. 1903.

This volume, which is one of the largest of the series, is also perhaps the best. The subjects treated of are of great importance, and are very ably dealt with. Our information with regard to many has greatly advanced during recent years, and such advance is fully brought under our notice in this work. This volume contains an account of many affections within the abdomen, and of genito-urinary surgery and other important subjects. The authors acknowledge their indebtedness to the recent work of Henry Morris in connection with the surgery of the kidney and ureter, and to Fowler and Godlee's work on diseases of the chest. Much valuable information has also been gathered from Quénu and Hartmann's work on the surgery of the rectum. The illustrations are as remarkably good as they were in the chapters on abdominal surgery in the last volume, particularly those illustrating diseases of the rectum and the kidney.

We think, in connection with the subject of enlargement of the spleen and its treatment by splenectomy, the important condition of splenic anæmia and its operative treatment might have found a place.

It is interesting to note the opinion of the authors on the value of oöphorectomy in cancer of the breast. They have evidently a poor estimate of it, for they only advise its performance if the disease can at the same time be almost completely removed; and even in such condition they admit they have seen striking instances of the futility of the proceeding, and they say that they have never known an actual cure.

As this is the last volume of the series, we must say how greatly we value them as a whole, and how strongly we advise their addition to the library of every practitioner.

The Refraction of the Eye and the Anomalies of the Ocular Muscles. By KENNETH CAMPBELL, M.B. Pp. 214. London: Baillière, Tindall and Cox. 1903.

The author in his preface says: "True science is itself simple, and should be explained in as simple and definite language as possible," and with this text before him he has brought out a work that for simplicity in explanation seems to be everything that can be required. He has selected that portion of ophthalmic surgery that is usually a difficulty to the ordinary student of medicine. With this work before him no one should be at a loss to grasp the whole theory of refraction.

The Practical Application of the Röntgen Rays in Therapeutics and Diagnosis. By WILLIAM ALLEN PUSEY, M.D., AND EUGENE WILSON CALDWELL. Pp. 591. London: W. B. Saunders & Co. 1903.

The appearance of this bulky volume of nearly six hundred pages is a testimony to the growing importance of the X-rays in medical and surgical practice. The work is, as its title claims, eminently "practical" in character, and is a record mainly of the two authors' own personal experience, and is the more valuable in consequence.

The volume is divided into two parts—one of the authors writing on the technique of the X-rays and the other on their therapeutic use. The first is one of the best and most practical descriptions of the necessary apparatus and the mode of using it that we have met with, and can be cordially recommended to any worker on the subject. One of the best chapters is the one on fluoroscopy, in which the limitations of an examination by the fluorescent screen is rightly insisted on. It is so very easy "to overlook fractures where there is little or no displacement, and even foreign bodies if they are of no great size." Again, in the chapter on printing from the negative, a point is insisted on viz.: "It is impossible to get in a print all the detail which may be seen in an X-ray negative," a point not sufficiently taken into consideration by persons not accustomed to work radiography.

The second part of the volume, and the larger part, is given up to the therapeutics of the X-ray. The author states that his chief object is to present "facts" towards the elucidation of what the X-rays will do and what they will not. Accordingly after some excellent chapters on the pathological effects of the rays on the tissues of the body, he proceeds to take each disease,

or set of diseases, in which the rays have been used therapeutically, and give the results that other workers have recorded, and then give detailed notes of cases (mostly illustrated with photographs) in which he has himself used the remedy; after which he sums up the results of his own and other workers' treatment in each case. The result of his work is to bear witness to the great value of the X-ray as a therapeutic agent. Thus in common with other observers he has been most successful in his treatment of rodent ulcer, here called cutaneous carcinoma; also in various forms of skin disease, etc. He also bears testimony to the wonderful anodyne effects of the rays in inoperable malignant disease, and not only this, but in some of the cases quoted there were some marvellous curative results; thus in five out of the eighteen cases which had been treated by the author there was "symptomatic cure."

Taking it altogether, this work is one of the best and most practical which has appeared on the subject, and can be thoroughly recommended to anyone interested in radiography.

Surgical Bandaging and Dressings. By Wm. Johnson Smith. Pp. viii., 167. London: The Scientific Press Ltd.—A useful little pocket-book for dressers and nurses, explaining the principles of aseptic and antiseptic surgery, the treatment of wounds and ulcers, and the application of bandages, splints and strappings. The latter part is profusely and well illustrated, but the splint pictured as Carr's for fractured radius is not the one usually understood as "Carr's."

Modern Methods in the Surgery of Paralyses. By A. H. Tubby and Robert Jones. Pp. xiii., 311. London: Macmillan & Co., Ltd. 1903.—By means of muscle-grafting, tendon-transplantation and arthrodesis, modern surgery has done much to mitigate and remedy the helpless and hopeless condition of many patients afflicted with an incurable paralysis, and the present volume is a timely exposition of the means by which so much good has been accomplished. Nearly two-thirds of the book is taken up with infantile paralysis, and the methods by which the various disablements and deformities which arise in this condition can be remedied are duly and lucidly discussed. In some of the illustrative cases the results are most gratifying and almost astonishing, and yet the manner of accomplishment is in most cases simple enough. It is doubtful whether any good purpose is served by a brief discussion of the ætiology and pathology of this condition in a work which deals mainly with the surgical side of the matter; and it is, perhaps, not in the best taste to state how various patients made "endless journeys" to "surgeons and physicians of repute," and consulted the "best of our neurologists" without benefit before coming under the care of the authors. It is very properly pointed out that the recognition of the differences between the disabilities due to mechanical

causes and those due to central pathological changes will cause much of the difficulty in treatment to disappear. The second section of the book deals with infantile spastic paralysis, and the third section with various paralyses and deformities arising from injuries and diseases of nerves and some degenerations of the spinal cord. The underlying principles of treatment are the same in all, and the descriptions of the various methods are clear and concise and freely illustrated by helpful illustrations. The book can be safely recommended to all who are interested in orthopædic surgery.

Modern Materia Medica and Therapeutics. By A. A. STEVENS, M.D. Third Edition. Pp. 663. Philadelphia: W. B. Saunders and Company. 1903.—This edition has been re-arranged, inasmuch as the drugs are no longer in alphabetic order but are classified according to their pharmacologic action. All the well-known drugs are reviewed briefly and without the introduction of controversial topics. It is interesting to note that amongst circulatory stimulants is included the extract of suprarenal capsule (p. 58), and the physiologic and therapeutic actions of the suprarenal glands are described at greater length (p. 338). As a local vaso-constrictor adrenalin has proved to be exceedingly valuable, but for internal medication its utility is not yet firmly established. Extravagant statements are being made, which have yet to be proved. A writer in the *Medical Examiner* (Sept., 1903, p. 536) expresses his belief that "if a man's emunctories are in very good condition when he reaches the age of sixty-five, there is no doubt in my mind that he can live to one hundred, or longer, if he be furnished with the adrenal secretion." It has yet to be proved that suprarenal extract is a useful remedy in Addison's disease. Another organ which is being endowed with magic properties is the pituitary body: this, according to Sajous, is a very important part of the adrenal system, and controls not only the circulatory system, but is a governing centre of the nervous system also. This book gives very little evidence either of one or the other. The author believes that even with the extract of the testicle of rabbits, by which Brown-Séquard produced such remarkable effects of rejuvenation, in no instance has the good achieved been so decided as to convince a judicious observer that it was not due to mental suggestion rather than to the physiologic activity of the drug itself. Amongst the antipyretic drugs it is stated that phenacetin is the most satisfactory of the coal-tar series, and when used in moderate doses it is rarely followed by cyanois, collapse, cutaneous eruptions, and other untoward effect. This is in accord with general experience, and phenacetin has accordingly almost entirely displaced all other antipyretics. The chapters on applied therapeutics contain the usual summary of the treatment of various diseases. There is little which is new, but the author is a safe guide who admits nothing but that which is established on a satisfactory basis.

Editorial Notes.

University College Colston Society.

THE fifth annual meeting of this Society was held on January 21st, 1904, under the presidency of the Right Hon. HENRY HOBHOUSE, M.P., who, in proposing "The Pious Memory of Edward Colston," asked the question how Edward Colston would have spent his money had he been in Bristol to-day. He would have looked round, and would have seen, in the first place, an admirably-organised system of elementary schools, supported by the rates of the city; then he would have seen very excellent secondary schools of every grade and every type, ranging up to their Grammar School and Clifton College. He would next have visited that well-equipped technical institute founded by the Society of Merchant Venturers, where such good work was accomplished in technology and applied science; and last, but not least, he would have cast his eyes upon that which was, or ought to be, the apex of their educational institutions—the University College. That institution, to quote the highest and most impartial authorities, was doing, under able and public-spirited management, the good work of spreading enlightenment and mental culture, of encouraging scientific research, and training with vigour and efficiency professional men and the future teachers of the young; and was doing all this work with inadequate funds and insufficient equipment. It had to do it with no aid from the rates, with a scanty allowance from the spirit duties, and with a most meagre Government grant, doled out by a parsimonious Treasury. There was a constantly-advancing demand for new and better scientific apparatus, more space, and more appliances, and specially, as he now learned, in the departments of electro-technics and bacteriology. Bristol was in some danger of falling behind in higher-grade education—not only behind foreign cities, but many large towns of this country—and he had no doubt the Colston whom he

had imagined returning amongst them that day would have devoted a large portion of his fortune to making that University College the acknowledged intellectual centre not only for Bristol but for the West of England. He hoped that citizens, inspired by the noble generosity of Edward Colston, would come forward with funds to raise the efficiency of the College.

The Right Hon. Sir JOHN E. GORST, K.C., M.P., in responding for the guests, spoke on the subject of University Education, and from an experience of seven years in the office of Minister of Education he had come to the conclusion that the country suffered from too many examinations. When they became a University they would have to confer degrees, and he supposed it was impossible to confer these without some kind of examination, but he wished it were possible to make it imperative that all candidates should produce some definite piece of work as a condition for which the degree should be conferred. It was so in many of the older Universities with regard to the awarding of a doctor's degree, where certain definite intellectual work was done and approved, instead of a mere examination, the answering of a number of questions. He did not know whether it was possible for this to be more universally followed. The possession of a University degree should be proof that the holder had done some definite intellectual original work, in recognition of which the distinction had been awarded. Degrees and certificates in some instances had lost their value owing to the small attainments for which they were conferred. There were in America, as they knew, sham universities, which gave sham degrees to people which had no significance at all. There were numbers of people in the world who, without knowing how degrees were acquired, were ready to attach extraordinary value to letters which came after a name, and which in reality meant nothing at all. It had been proposed to take legal notice of this, but he doubted whether they could do anything which would guard them against the folly of mankind. In conferring degrees the greatest possible care should be taken. A degree conferred by a Royal University with a charter from the Crown should be conferred for such solid attainments as would prevent it from being

confused with degrees obtained by mere examination. He wished their institution every success when it attained the position which it would as the head of the educational system of the West of England.

The President of Magdalen College, Oxford (Mr. T. HERBERT WARREN, M.A.), also spoke on the subject of the proposed local University, and said that he believed the granting of degrees by Bristol would before long be a *fait accompli*. He had asked himself upon more than one occasion whether he wished to see Universities multiplying in this country. He had a strong belief in University Colleges. Some seven years ago it was his duty and privilege, representing the Treasury, to visit the University Colleges of Great Britain, and to apply a comparative method to them. They spent a great deal of time and trouble in ascertaining what was really the character of the work being done in those Colleges, and he remembered very well their impression that excellent work was being accomplished. Some of those Colleges had since become Universities, and he was of the opinion that the question of how many should in the future become Universities depended upon the effort that would be made by the localities and communities in which they were situated. They received the impression that the work done in Bristol was of a genuine kind, but they came to the conclusion that there was not sufficient local support. He fought hard for his own city and College, and endeavoured to obtain rather more from the Treasury, but was met with the argument that the local support was insufficient. When he looked at the report sent in about two years ago to the Treasury, by those who had visited the College, he found the tone of that institution was still the same, only even still more emphatic than before, and that the local support had to some extent increased. He thought, however, that it was not yet what it ought to be. Still, a very great deal had been done, and they ought not to be too despondent. They should press forward in the course on which they were well advanced.

Mr. J. W. ARROWSMITH, in announcing the financial results of the year, spoke of the scheme for the completion of the

College according to the plan originally laid down, and of erecting a tower in connection with the new wing as a memorial to the late Mr. Albert Fry.

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Recent Honours obtained by University College Students.

We cordially congratulate the past and present students of the Medical Faculty of the University College, Bristol, who have distinguished themselves and done credit to the Medical School by winning honours of which any School of Medicine may be justly proud. Mr. A. R. Short, M.B., B.Sc. (Lond.), who has had a brilliant student's career, was awarded the Gold Medal and Scholarship, obtaining the first place in Medicine in the Final M.B. Examination, and also First-class Honours in Obstetric Medicine. Mr. J. J. S. Lucas, M.B. (Lond.), F.R.C.S., obtained Honours in Medicine and Forensic Medicine. In the Final B.S. Examination Mr. M. H. Phillips, M.B. (Lond.), F.R.C.S., gained the Gold Medal and Scholarship in Surgery.

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University College. Proposed Athletic Ground.

In aid of funds to acquire an Athletic Ground for our students, performances of *The Schoolmistress* are announced to take place on April 29th and 30th, in the Victoria Rooms, under the direction of Dr. D. S. Davies. We trust that the efforts being put forth for this most desirable object will meet with the response they deserve, and that friends of the College will interest as many people as possible and get them to support Dr. Davies.

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Royal National Pension Fund for Nurses.

Attention has recently been called to this fund by a visit from the Secretary, Mr. Louis H. M. Dick, who gave a lecture on the subject in the Board-room of the Bristol Royal Infirmary on January 27th. The matrons, sisters and nurses of various medical institutions were present, and the advantages conferred by the fund were explained. At the conclusion Mr. Joseph Storrs Fry remarked

that he and other members of the General Hospital Committee had thoroughly investigated the subject, and were quite satisfied that it was the best thing a nurse could do by way of securing a pension for old age. The valuation of the fund just completed establishes beyond question the fact that the money which a nurse pays into the fund produces a very much better annuity than can be obtained in any other way. The working years of nurses are comparatively few, and some sacrifice in the early years of life becomes a necessity as a provision for the later ones. The committees of various medical charities are doing all they can to assist their nurses in the payment of premiums which must take a comparatively large portion of their yearly income.

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St. John Ambulance Brigade.

This brigade has undertaken a very good work in aid of the National Association for the Prevention of Consumption. A number of men of the local brigade who hold the Nursing Certificate of the Order have been selected to visit at frequent intervals cases of consumption occurring among the poor; and lady helpers have volunteered to do a similar work among those of their sex. The association will supply gratuitously sputum flasks of the Dettweiler pattern to each sufferer, which visitors will leave together with a card of suggestions for the prevention of the disease. By indicating to the sufferer the precautions which should be adopted to prevent re-infection in himself as well as spread of the disease amongst others, and by repeated visitation to see that the suggestions are adopted, it is hoped that the brigade will receive such encouragement as will justify a continuance of this effort.

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Patent Medicines.

The Workmen's League, Rotherhithe, may be congratulated on their enlightened action in issuing a leaflet to the working classes warning them against paying any attention to the advertisements of quacks and vendors of patent medicines. The leaflet says very truly that "these humbugs prey upon the credulity of

the British race," and further on it makes some strong remarks on the action of a certain portion of the press which insert their advertisements. The League considers the subject of sufficient importance to try and bring it under the notice of the Government, and every well-wisher of the people will wish them every success in their endeavours. Surely it is not too much to expect of a Government that can spare time to legislate for the beasts that perish, to pass a short Bill to compel every vendor of a quack medicine to state plainly on each bottle of medicine that is sold the composition of the mixture that it contains, which ought, one would think, to have the effect of making people think twice before taking, for example, iodide of potassium for fancied impurities of the blood, or large doses of nitrate of potassium for imaginary disease of the kidneys. We should like to see this excellent pamphlet more widely circulated, as the working classes are by no means the only offenders in this way, the more educated classes being quite as much, if not more, inclined to pour nasty concoctions, of whose composition they know absolutely nothing, into their ill-used and long-suffering bodies.

* * * * *

Winsley Sanatorium. We are indebted to Dr. Lionel Weatherly for the following information in reference to the sanatorium which is now rapidly being completed at Winsley. A year ago the Committee, who have for some time past been using all their energies to get together sufficient funds to enable them to build and equip the Winsley Sanatorium for the poorer consumptives of the Counties of Somerset, Gloucester and Wilts, and the City and County of Bristol, were much troubled as to the expediency of making a start by building the administrative part of the Sanatorium and some twenty beds as a commencement. They finally decided to recommend this course, and resolutions to that effect were duly passed at the annual meeting held at Bath last spring. On June 4th the foundation stone was laid by Lady Dickson Poynder, and to-day the Committee are able to congratulate themselves on the successful issue of the step they then took. Funds have come in so well that at the present

time the whole scheme for the sixty beds is rapidly approaching completion, and the Committee hope to start the good work of this Sanatorium during the early weeks of next October. When the Sanatorium is opened it is intended that it shall be quite up-to-date in all details. There will be forty free beds, and twenty beds at an average cost to the patients of some six shillings per week. The following public bodies, firms, groups of persons in certain towns, and private individuals have given sums for the building of beds and have promised to maintain them:—

The Bristol Town Council	20 beds
The Bath Town Council	2 ,,
The Swindon Town Council	2 ,,
The Gloucester Town Council	1 ,,
The Cirencester Rural District Council ...	1 ,,
The Highworth District Council	1 ,,
The G.W.R. Swindon Works	1 ,,
The Dean Testimonial Fund, Swindon ...	1 ,,
Messrs. Fry and Sons, Bristol	1 ,,
Mr. John Bright Clark, Street	1 ,,
Mr. and Mrs. W. Clark, Street	1 ,,
Cirencester Town, per Dr. Fowler	1 ,,
Trowbridge Town, per Dr. Pearse	1 ,,
Bradford-on-Avon Town, per Dr. Flemming	1 ,,
	35 beds

It will be seen that the Committee have now only five beds to be disposed of, and they believe these will very soon be taken up. It cannot be too strongly emphasised that the Committee have determined to give the benefits of this Institution to those parts of the four counties who have helped towards the good result already described. They have appealed in vain to certain districts for help, and the meagre support they have received from various districts must result in these districts finding themselves left without the right of nomination. In actual cash and promises the Committee have received up to December 31st, 1903, the following sums:—

In donations, including private beds	£8,565	9	2
From Town Councils and District Councils, as per deeds	6,750	0	0
Promises from private persons	450	0	0
By sale of land	385	4	8
By interest and sundries	38	5	4
	£16,188	19	2

The Committee are organising a Carnival at the Clifton Zoological Gardens during next summer for the purpose of paying for the furniture of the Sanatorium, with Mr. F. E. Metcalfe as their energetic hon. secretary, and they earnestly hope this will result in collecting enough for this purpose. If this result is gained, and the Committee are able to dispose of the other five beds, the balance to be still collected to complete the whole scheme will not be more than some £2,000, which should be readily collected from those districts which so far have not seen fit to hold out the helping hand in this good cause.

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We are glad to observe that our late active Secretary for the Wiltshire section is now doing good work in Durban, which has the distinction of being the first town in South Africa to found a branch of the National Association for the Prevention of Consumption.

* * * * *

We regret to learn that the world has lost one of its pioneers in sanatorium treatment, Dr. Dettweiler, late chief physician to the Falkenstein Sanatorium for Consumptives. It was mainly due to his exertions that the movement for providing sanatoria for the poorer classes has been so successfully developed in Germany.

Notes on Preparations for the Sick.

Messrs. Burroughs, Wellcome & Co. announce that a **Historical Medical Exhibition** of rare and curious objects relating to Medicine, Chemistry, Pharmacy, and the allied sciences is to be held in London in 1904, in commemoration

of the foundation of their firm. Mr. Henry S. Wellcome states that the exhibition will be strictly professional and scientific in character; the intention is to bring together a collection of historical objects illustrating the development of the art and science of healing throughout the ages. He asks for the assistance of all who possess objects within the range proposed, which is a very wide one, embracing paintings, drawings, engravings, photographs, medallions, sculptures, manuscripts, books, letters, diplomas, instruments, apparatus, and curiosities of medicine, surgery, pharmacy, and allied sciences.

The historical souvenir of the British Medical Association at Swansea last year, entitled *Antient Cymric Medicine*, is an indication of Mr. Wellcome's enthusiasm and industry in the collection of archæological records of medical and surgical interest. We have no doubt that the proposed exhibition will be worthy of and will do credit to its promoters.

Tabloids.—Burroughs, Wellcome & Co., London.—*The Tabloid Case.* The proprietary rights of this firm to the name Tabloid have been amply established by the action brought by this firm against Messrs. Thompson and Capper, of Manchester. After a seven days' trial judgment was given in favour of Burroughs, Wellcome & Co. on all counts. The sin of substitution has been fully exposed, and the medical profession may have increased confidence that they may depend upon the faithful dispensing of prescriptions. It is a little unfortunate, perhaps, that the form of the drug becomes as important, or more so, than the drug itself, and that proprietary rights should enter into the prescription at all; but we have to accept the fact that these rights must be respected if we depart from the limited range of the Pharmacopœia. Of one thing we ought to be sure, that if a proprietary article is prescribed that that alone, and not something like it, is to be dispensed.

The following tabloids have recently been forwarded to us as new preparations:—

Tri-bromides Effervescent.—Each tabloid contains approximately 15 grains of the mixed bromides of potassium, sodium, and ammonium in a soluble effervescing form. Such a combination is convenient, and may sometimes be more useful than the corresponding dose of any one of these bromides.

Hydrarg.-Perchlor., gr. $\frac{1}{32}$, et Potassii Iodidi, gr. ijss.—This tabloid is half the strength of one which was issued some time since. It may be useful when it is needful to continue the administration of these drugs in small doses for a long period.

Antifebrin Compound—Antifebrin, gr. ij.; caffeine citrate, gr. j.; camphor monobromide, gr. j.—This combination is useful in various forms of headache and neuralgic affections. It may be prescribed in all cases where its principal ingredient, acetanilide, is indicated.

Sparteine Sulphate, gr. j.—This drug is often useful as a cardiac tonic and diuretic.

Zinc Valerianate, gr. ij.—These sugar-coated tabloids are readily soluble, and have none of the unpleasant features of the crude drug.

Cyllin (Disinfectant), Cyllin (Medical) Fluid.—JEYES' SANITARY COMPOUNDS COMPANY, 64 Cannon Street, London.—In our last number (Vol. xxi., p. 375) a notice of Creolin and Creolin (Medical), we are now informed that having regard to the confusion referred to by Dr. Rideal in his essay appearing in *Public Health* for December, 1903, entitled "Creolin: A Note of Warning," in reference to various inferior products of different compositions sold under the name of "Creolin," the Jeyes' Sanitary Compounds Company, Limited, who are the sole owners of that mark in Great Britain and British Colonies, and have the exclusive right of sale of "Creolin" therein, beg to announce that from and after January 1, 1904, the liquid products now sold by them as "Creolin" (Disinfectant) and "Creolin" (Medical) will be labelled and sold as "Cyllin" and "Cyllin" (Medical). The company have accordingly registered the word "Cyllin" as their trade mark.

Pepule—Pepsin and Zymine—FAIRCHILD BROS. AND FOSTER, London.—These sugar-coated pepules contain two grains of pepsin and three of zymine, containing the three pancreatic enzymes. The combination may be useful in many cases of indefinite dyspeptic troubles, when it is difficult to determine which of the two preparations is likely to be the more useful.

Pure Sterilized Cream.—FUSSELL AND CO., 4 Monument Street, London.—This sample was quite like ordinary fresh cream: there was nothing unpleasant in its flavour, and it appeared to be everything it is represented to be.

Hopogan (Powder or Tablets): Peroxide of Magnesium, MgO_2. **Ektogan**: Peroxide of Zinc, ZnO_2.—THE BRITISH DRUGGISTS, LTD., London.—These peroxides are of some chemical interest, and should be of therapeutic value. Their names do not connote anything of their nature or properties, but chemical examination shows that Hopogan contains a large amount of magnesium peroxide and Ektogan a large amount of zinc peroxide. Both substances will give hydrogen peroxide first and then oxygen when brought into contact with organic matter.

If the oxide of magnesium be taken internally, hydrogen peroxide will be at once formed in the stomach and at once decomposed, giving nascent oxygen. It should therefore be of

use whenever increased oxidation and antisepsis of the stomach are desirable.

The zinc peroxide should act locally as an antiseptic, owing to the liberation of nascent oxygen from contact with organic matter. The Ektogan gauze and Ektogan salve should be useful for surgical purposes; the powder unmixed may be used for erosions of skin and mucous membranes.

Lithiated Sorghum Compound; Mel-Maroba; Ergotole.—SHARP AND DOHME, Baltimore.—These manufacturing chemists of the United States have forwarded through Messrs. Thomas Christy and Co., of London, the above-named "meritorious specialities."

The Lithiated Sorghum Compound is described as a palatable demulcent diuretic, containing broom-corn seed, corn silk, saw palmetto, hydrangea, and lithium bromo-citrate. The broom-corn seed gives its name (Sorghum saccharatum) to the compound, which, from its elaborate composition, should be most effective as an antiseptic diuretic. It is difficult to understand how such a compound can be all which its authors claim, but "whenever it is desirable to use a tonic, stimulating, sedative-to-the-mucous-membrane diuretic," this is the combination to employ.

The Mel-Maroba is called an ideal tonic-alterative. It contains manaca, caroba, stillingia, with 16 grains of potassium iodide in each fluid ounce. Its utility is obvious.

The Ergotole is an assayed, purified, permanent, liquid preparation, each minim representing $2\frac{1}{2}$ grains of select Spanish ergot. It is the standard ergot of America.

We have received samples of some of the **Newer Products** of Messrs. Parke, Davis, & Co., London:—

A Pocket Atomiser and Nebuliser, No. 38 (Parke Davis) is an exceedingly neat and effective spray for oily solutions, and as it can be carried in the waistcoat pocket it will be found very useful in cases where frequent intra-nasal applications are called for.

Acetozone, a new non-toxic germicide, is stated to be benzoyl-acetyl-peroxide, forming whitish crystals which melt at 98° F., and which undergo hydrolysis and slow decomposition in the presence of water. It is marketed in the form of a powder containing 50 per cent. of pure acetozone. It can be administered in capsules, diluted with sugar of milk, lycopodium, etc., or in solution by adding 25 grains to a quart of distilled water. This can be taken internally, or used as a spray or for irrigation, etc. As a dusting powder acetozone should be diluted with 100 to 500 parts of boric acid, talc, or other material; or 1 to 5 per cent. may be combined with petroleum ointment bases for use as an ointment. We have found it

acceptable and well borne in gastro-enteritis. A pint of the solution drunk daily seemed to have excellent results as an internal antiseptic, but we cannot speak from personal experience of its use in typhoid fever, for which it is recommended administered in this manner.

Terpin Hydrate and Heroin Co. in chocolate-coated tablets is an agreeable form in which to prescribe this useful combination.

The Library of the Bristol Medico-Chirurgical Society.

The following donations have been received since the publication of the List in December :

February 29th, 1904.

The Director of the Department of Public Health and Charities, Philadelphia (1)	1	volume.
L. M. Griffiths (2)	2	volumes.
Medical and Chirurgical Faculty of the State of Maryland (3)	1	volume.
Medical Library of McGill University (4)	2	volumes.
The Medical Officer of the London County Council (5)	3	,,
New York Academy of Medicine (6)	1	volume.
The Council of the Otological Society (7)	1	,,
The Council of the Pathological Society of London (8)	1	,,
The Scholastic Trading Company (9)	1	,,
R. Shingleton Smith, M.D. (10)	1	,,
James Swain, M.D. (11)	1	,,

Pamphlets have been received from Mr. L. M. Griffiths and the Medical Library of McGill University. Unbound periodicals have been presented by Mr. J. Paul Bush.

FIFTY-FIRST LIST OF BOOKS.

The titles of books mentioned in previous lists are not repeated.

The figures in brackets refer to the figures after the names of the donors, and show by whom the volumes were presented. The books to which no such figures are attached have either been bought from the Library Fund or received through the *Journal*.

Atlas of Illustrations of Clinical Medicine, Surgery and Pathology, An. Fasc. VIII., IX.... 1903
Bastian, H. C. ... *Studies in Heterogenesis* 1903
Beckmann, H. ... *Das Eindringen der Tuberculose* 1904
Benson, J. R. ... *A Scheme for the Provision of Nursing Homes for the Middle Classes* 1904
Bowles, R. L. ... *The Treatment of the Apparently Drowned* 1904
Collie, A. ... ... *The Infectivity of Enteric Fever* 1904
Cunning, J. ... *Aids to Surgery* 1904
Eastern Hospitals and English Nurses. 2 vols. ... ... (2) 2nd Ed. 1856
Fenwick, E. H. ... *Ureteric Meatoscopy in Obscure Diseases of the Kidney* 1903
Francis, A. ... ... *Asthma in relation to the Nose* 1903
Frank, F. ... ... *Geburtshilfliche Polikliniken an Hebammenschulen* ... 1904
Hare, F. ... ... *Mechanism of the Paroxysmal Neuroses* 1903
Herring, H. T. ... *The Sterilisation of Urethral Instruments* 1903
Hillier, A. ... ... *The Prevention of Consumption.* (Revised by R. Koch) 1903
Homfray, C. T. Kingzett and D. *A Pocket Dictionary of Hygiene* 2nd Ed. 1904
Kingzett and D. Homfray, C. T. *A Pocket Dictionary of Hygiene.* 2nd Ed. 1904
Langenhagen, M. de. *Muco-membranous Entero-colitis* ... ... (10) 1903
Melland, C. H. ... *Clinical Methods* 1903
Miles, A. Thomson and A. *Manual of Surgery* Vol. I. 1904
Milroy, J. A. and T. H. *Practical Physiological Chemistry* 1904
Overall, G. W. ... *A Non-Surgical Treatise on Diseases of the Prostate Gland and Adnexa* ... . [1903]
Reinhardt and D. Thomas, C. *A Handbook of the Open-Air Treatment* 2nd Ed. 1902
Robinson, M. ... *A Guide to Urine Testing* ... ... 2nd Ed. 1904
Robson, A. W. M. *Diseases of the Gall-Bladder and Bile-Ducts* 3rd Ed. 1904
Shaw, J. ... ... *Mental Diseases and Degeneracy* 1903
Smith, E. N. ... *Lateral Curvature, Stooping, &c.* 1904
Stacpoole, Florence *Ailments of Women and Girls* 1904
Sutherland, W. G. *Dispensing made Easy* 1903
Thomas, C. Reinhardt and D. *A Handbook of the Open-Air Treatment* 2nd Ed. 1902
Thomson and A. Miles, A. *A Manual of Surgery* Vol. I. 1904
Treves, Sir F. ... *A Manual of Operative Surgery.* 2 vols. New [2nd] Ed. 1903
Walker, E. W. A. *The General Pathology of Inflammation, Infection and Fever* 1904
Waring, H. J. ... *Manual of Operative Surgery* ... ... 2nd Ed. 1904
Williams, W. R. *Vaginal Tumours* 1904
Willoughby, E. F. *Milk: its Production and Uses* 1903

TRANSACTIONS, REPORTS, JOURNALS, &c.

American Dermatological Association, Transactions of the 1903
Association of American Physicians, Transactions of the Vol. XVIII. 1903
British Almanac, The 1904
British Medical Journal, The ... ... Vol. II. for 1903
Clinical Journal, The ... ... Vol. XXII. 1903
Edinburgh Medical Journal, The ... ... N.S., Vol. XIV. 1903
Hazell's Annual 1904

Hospitals—
Medical and Surgical Reports of the Boston City Hospital (11) 14th series 1903
Johns Hopkins Hospital Reports, The ... ... Vol. XI. 1903
King's College Hospital Reports ... ... Vols. VI.—VIII. 1900-03
Philadelphia Hospital Reports ... ... (1) Vol. V. 1903
Studies from the Royal Victoria Hospital, Montreal. (4) Vol. I., Nos. 4, 5 1902-03
Saint Bartholomew's Hospital Reports ... ...Vol. XXXIX. 1904
Journal of Mental Pathology, The... ... ...Vols. III., IV. 1902-03
Lancet, The ... ... Vol. II. for 1903
Library World, The ... ... Vol. V. 1903
London County Council, Annual Reports of the Medical Officer of Health of the, 1900-02 .. .. (5) 1900-03
Medical and Chirurgical Faculty of the State of Maryland, Transactions of the .. .. (3) 1903
Medical Directory, The 1904
Medical Society's Transactions, The ... ... Vol. XXVI. 1903
New Hampshire Medical Society, Transactions of the 1903
New York Academy of Medicine, Transactions of the, 1896—1901. (6) 1903
Ophthalmological Transactions ... ... Vols. XXII., XXIII. 1902-03
Otological Society of the United Kingdom, Transactions of the (7) Vol. IV. 1903
Pathological Society of London, Transactions of the ...(8) Vol. LIV. 1903
Philadelphia Medical Journal, The ... ... Vol. XI. 1903
Public Health ... ... Vol. XV. 1902-03
Publishers' Circular, The... ... ... (9) Vol. LXXVIII. 1903
Royal Academy of Medicine in Ireland, Transactions of the Vol. XXI. 1903
Sanitary Record, The ... ... Vol. XXXI. 1903
Smithsonian Institution, Annual Report of the, 1902... 1903
Whitaker's Almanac 1904
Who's Who 1904

MEETINGS OF SOCIETIES.

Bristol Medico-Chirurgical Society.

December 9th, 1903.

Mr. J. Paul Bush, C.M.G., President, in the Chair.

Mr. T. J. Tonkin read a paper on **Leprosy in Jamaica,** illustrated by lantern slides. [*Vide* p. 1.] The paper was discussed by Mr. Paul Bush, Dr. Theodore Fisher, Dr. Michell Clarke, Dr. Steele, Dr. Cave and Dr. Alexander, and Mr. Tonkin replied.

Mr. G. Munro Smith showed **specimens from a case of gastro-jejunostomy.** The patient died on the fifth day, although

the *post-mortem* examination showed that the union of the stomach and jejunum had been perfect and no leaking had occurred. In spite of good mechanical results these cases sometimes succumbed, and the present case was an example of this, death following the operation from toxæmia and shock.

Mr. F. LACE read notes on a case of intestinal obstruction due to a hair-ball, and showed the specimen. Obstruction had lasted two days, and had been accompanied by incessant biliary and stercoraceous vomiting and great abdominal pain: the latter interfered with the examination of the abdomen, but a swelling was found in the right iliac fossa. The patient's mother was convinced that a hair-ball had formed, and one was found situated in the jejunum. It was removed through a two-inch incision into the bowel. The subsequent history had been uneventful. As a child the patient had been observed to suck her hair. She had undergone treatment for gastric ulcers when fourteen years of age. Soltau Fenwick had reported twenty-four cases of the affection, all except two of which had been fatal, and two of them had been fatal from intestinal obstruction.

January 13th, 1904.

Mr. J. PAUL BUSH, C.M.G., President, in the Chair.

Dr. H. ELWIN HARRIS showed **a case of congenital absence of the left auricle and external auditory canal with facial paralysis.** In addition, the palate was much higher and moved less perfectly on the left than on the right side. No operative treatment was contemplated.—Mr. J. LACY FIRTH alluded to the fact that in these cases of congenital atresia auris the deafness was of the middle ear type, and that though operations had been tried for the purpose of improving the hearing, they had been found to be useless.

Mr. H. F. MOLE showed the following cases and specimens: (*a*) Patients on whom the "**radical mastoid** operation," or "ossiculectomy," had been performed for chronic suppuration in the middle ear; (*b*) A case of **choledochotomy,** with specimen: (*c*) A case of tumour of the nasal septum, with specimen —the whole of the cartilaginous septum had been removed; (*d*) Skiagrams of an unusual dislocation of the ankle—the foot had been displaced upwards between the tibia and fibula.—Mr. J. LACY FIRTH referred to the different degrees in which the mastoid antrum had been rendered accessible in the radical mastoid cases shown. He liked best to get a very free permanent access to that cavity as a result of the operation, and on the whole had found Ballance's first described plastic procedure the most satisfactory for the purpose. Some cases were disappointing from long persistence of the otorrhœa even after the operation.—Mr. W. ROGER WILLIAMS discussed septal tumours of the nose, and asked as to the nature of the specimen

shown. He referred to Moore's case of sarcoma of the septum. —Mr. MOLE in replying said that the antrum, if small, filled up after the radical operation. He also liked a good wide opening leading to the antrum. The method by splitting the meatus backwards sometimes led to trouble in the after-treatment. There had been no recurrence of the septal tumour. Sections showed spindle-celled tissue.

Dr. J. M. FORTESCUE-BRICKDALE showed: (*a*) A **specimen of accessory gall-bladder**; and (*b*) The **brain of a child showing simple meningitis and considerable dilatation of the ventricles.** The accessory gall-bladder had the form of a small cyst lying in a groove in the anterior surface of the liver. It had been discovered at a *post-mortem* in a child of two years of age, and had not given rise to any symptoms or signs during life. The brain was shown because it well illustrated dilatation of the ventricles. The symptoms had not been definite, except that of head-retraction. Both ears of the patient had contained pus and streptococci.

Mr. JAMES TAYLOR showed a **skiagram** from a case of **scurvy rickets.** The child, ten months old, had been reared on a proprietary food from the first fortnight after birth. There were the signs of rickets and the lower third of the right thigh was enlarged by a firm swelling surrounding the shaft of the femur. The skiagram showed displacement of the lower epiphysis of the femur.

Dr. E. W. HEY GROVES read notes on and showed a specimen from a case of **tubal gestation** producing severe internal hemorrhage without rupture. [See p. 46]. Mr. W. ROGER WILLIAMS remarked that the case illustrated the dependence of extra-uterine gestation upon anomalies of structure.

Dr. W. KENNETH WILLS read a paper on the present position of **radiography in therapeutics.** [See p. 39.] — Dr. A. J. HARRISON alluded to the good results which occurred after severe reaction, and he emphasized the fact that the rays often greatly relieved pain.—Dr. P. WATSON WILLIAMS asked if it would not hasten the treatment in lupus cases if the parts were first scraped and then treated with the rays. He also inquired as to the possibility of treating lupus involving nasal and other cavities, especially the lachrymal duct. Mr. JAMES TAYLOR said that the use of the rays was empirical, for it was not known what would heal and what would not. He had found the rays useless in epithelioma. He thought that rodent ulcers with a dry surface reacted better than those with a moist surface. The relief of pain produced was often so great, *e.g.* in cancer *en cuirasse*, and this fact alone was sufficient to justify the use of the rays.—Mr. PAUL BUSH protested against allowing a case of cancer which was operable to be first treated by X-rays. Valuable time was thus wasted.—Dr. K. WILLS in replying said that his objection to a burn, as opposed to a deep erythematous

dermatitis, was that it wasted much time and caused considerable pain. He considered that the same results appeared in the end without a burn. The effect of the rays in diminishing pain was better than that of medicinal anodynes, for the patient retained the full use of his faculties. The relief was only temporary, and the application of the rays had to be repeated in about forty-eight hours. The objection to first scraping lupus was that it produced scar tissue, which scatters the rays as much as ground glass diffuses ordinary light rays. Lupus in deep cavities, as far as his experience went, had not done very well. One case of nasal lupus was giving great promise, when the patient had to leave Bristol. With regard to treating cancer, he had only drawn attention to the views expressed by certain writers on the subject. In this country the general consensus of opinion was adverse to even trying the treatment in operable cases.

Dr. THEODORE FISHER read a paper on **hematemesis associated with small white kidneys.** The speaker reported four cases illustrating this association. In each careful search failed to lead to the discovery in the stomach, œsophagus or duodenum of a source for the hemorrhage. In each the liver was free from cirrhosis. The possible explanation of the hematemesis in these cases was discussed, and the speaker thought that it was most probably in some way connected with the excretion of toxines by the stomach.

February 10th, 1904.

Mr. J. PAUL BUSH, C.M.G., President, in the Chair.

Dr. H. WALDO showed the chest viscera from a case of **hæmoptysis due to a bronchial lymphatic gland sloughing into the œsophagus.** The patient, a boy, had had a cough since Christmas, and had been admitted to the Bristol Royal Infirmary a few days ago, after having had several attacks of hæmoptysis. The temperature was raised, and there had been coarse râles at the left base. Death resulted from hæmoptysis. At the *post-mortem* the left lung was found to sink in water, and a large sloughing lymphatic gland to have made its way into the œsophagus. —Mr. MUNRO SMITH asked where the hemorrhage had been produced.—Dr. SHINGLETON SMITH said the case was interesting as illustrating a possible but rare cause of hæmoptysis. It was known that in rare cases the sloughing out of calcareous particles in the lungs, produced by old phthisis, might cause hæmoptysis.—Dr. WALDO replied that the blood had come from the trachea, and was due to erosion of vessels in the root of the lung.

Dr. F. H. EDGEWORTH showed a case of **cretinism.** It was the only form of imbecility which could be improved by treatment. The child was four years old, but had the weight of a

child of three months and the intelligence of one a month old. It had supra-clavicular deposits of fat, a snub nose, pink cheeks, prominent abdomen with a small umbilical hernia, short limbs, but with the breadth of the epiphyses normal, and slight bowing of the tibiæ. The head was longer and not so square as usual in such cases. Skiagrams showed ossification of the diaphyses only, and the peculiar breadth of the extremities of the diaphyses. No enlargement of the thyroid gland existed. In achondroplasia the same bone changes were present, but without imbecility, and possibly, in this disease, there had been during intra-uterine life a temporary suspension of the activity of the thyroid gland. In treatment these cretins should be given as much thyroid extract as they could stand. It was unwise to push the dosage so as to accelerate the pulse above 110, and in the case he was showing two grains a day was the maximum dose which could be given. With three grains a day the pulse became 116.—Dr. D. A. ALEXANDER alluded to the possible relationship of osteomalacia with imperfect thyroid activity, and to the treatment of eclampsia with immense doses of thyroid extract.—Dr. MICHELL CLARKE recommended the use of the Liquor Thyroidei of the British Pharmacopœia rather than of dried extracts.—Mr. J. LACY FIRTH mentioned a case of cretinism he had treated with thyroid extract in which there had been an enormous goitre present, the largest he had ever seen. Numerous adenomata could be felt in the goitre. A marvellous reduction in size had resulted from the treatment, and the adenomata had become freely movable in the rest of the glandular substance. Thyroid adenomata were not apparently amenable to this treatment, but they were commonly associated with parenchymatous enlargement. In the case mentioned he attributed the diminution in size to the effect produced on this associated parenchymatous enlargement.—Dr. EDGEWORTH replied that a drawback to the use of Liquor Thyroidei was that it decomposed on keeping. The bone changes in osteomalacia were quite different to those described above. He thought the action of the drug in eclampsia might be due to hastened metabolism with the production of more urea. The urea acted as a diuretic, and the same effect might possibly be produced more directly by administering urea.

Dr. J. MICHELL CLARKE showed: (*a*) A **case of lesion of the cauda equina**; (*b*) A **case of lesion of the lumbar cord.**

Dr. WALTER SWAYNE showed a **calcareous mass removed from the broad ligament.** The patient, a woman of sixty, had suffered from pains in the lower abdomen, for which treatment had proved unavailing. A hard mass was felt per rectum to the left of the uterus. On opening the abdomen the mass was found to be adherent to the intestines and omentum and to be calcareous. The uterus was atrophied, and presented two small fibroids at the top, but had no connection with the mass. Through its coverings a grating on pressure had been yielded

by the swelling. He thought it possible that the mass was a calcified abscess in the broad ligament, the result of typhoid fever thirty years before.—Mr. H. F. Mole asked if the mass might not be a calcified fibroid of the broad ligament.—Dr. Alexander alluded to a case of recurrent attacks of severe abdominal pain he had seen, which had been at first thought to be appendicitis; later, as a positive Widal reaction had been given, it was thought to be typhoid fever. Ultimately it proved to be a case of intestinal obstruction from a gall-stone. He asked if it was possible that the typhoidal symptoms and signs could have been due to the gall-stone leading to the liberation of bacilli. There was a previous history of typhoid fever.—Mr. F. Lace thought the tumour was a calcified fibroid of the broad ligament. He had a larger specimen of the same kind removed from a broad ligament. In that case there had been other calcified fibroids present.—Dr. Kenneth Wills asked if the density of the adhesions had been such as would be likely to be met with around a calcified abscess.—Dr. Swayne thought it was quite possible that the tumour had been a calcified fibroid. The peculiar elasticity with grating of the tumour on palpation had not suggested that view at the time of operation. The mass had not been buried in dense adhesions posteriorly.

Mr. G. Munro Smith showed: (*a*) A skiagram showing **foreign bodies in the hand.** Five bodies were shown in the skiagram, one being a brooch-pin. The patient, a woman, had come complaining of having a needle in the forefinger. It seemed certain that she had voluntarily pushed these bodies into the hand. (*b*) A specimen of a **scrotal tumour.** The patient had had a hydrocele tapped some time previously. Probably then a hæmatocele had formed, and the hard swelling shown had subsequently formed. Microscopical examination favoured the view that the tumour was inflammatory. It surrounded the testis, which was normal.

Mr. A. W. Prichard read notes of **three cases of vesical calculus** he had recently operated upon by lithotomy, and showed the specimens. He alluded to the fact that the disease seemed to be much less frequent in the district than in former times. Possibly this was the result of better feeding. Also stones were now more frequently removed from the kidney.

Mr. J. Dacre read notes on two unusual cases of **pneumothorax.** Case 1 was that of a young man of twenty. On bending down one morning he suddenly felt a pain in the chest on the right side. He went to Trowbridge the same morning, but on arriving there the pain had become so intense that he had to return home. He was then found to look pale and ill and to have quick and shallow breathing. The right chest was found to be hyper-resonant from top to bottom, and the heart displaced an inch to the left. He was sent to bed. During the first few days the dyspnœa increased, and the apex beat became dis-

placed further to the left. The chest was tapped and air allowed to bubble out through carbolic lotion. Faintness soon came on, and the tube had to be removed. Later the chest was tapped again; but again the faintness came on, the heart having come back one inch nearer the normal position. He was then treated by perfect rest, and in three weeks to a month recovered completely. His chest had remained normal since, a period of two or three years, and there had been no previous history of pulmonary disease. Case 2 was that of a healthy youth of eighteen. After a hearty supper he went to the theatre, and when there felt suddenly sick, went out, and vomited freely. He returned to his seat, but again became faint and had to be given brandy. He complained of great epigastric pain. Next morning the speaker found him looking pale, but regarded the attack as having been one of colic. On the following day he was worse, and the signs of pneumothorax had developed, and also a friction sound synchronous with the heart beats. There was no rise of temperature. The patient was kept at perfect rest for a month, and at the end of eight weeks was quite well. The speaker ascertained that the youth had had a ledger-lifting contest with other clerks fourteen days previously, and had felt a sudden pain in the chest then. Perhaps he had ruptured a lung vesicle, weakened from the above accident, when vomiting, and this led to the friction and pneumothorax developing. He thought the cases showed that a favourable prognosis was warrantable in such cases in healthy individuals. The question of insurance claims under an accident policy came up in one of the cases. The company had decided that they were not liable, but awarded him compensation.—Dr. MICHELL CLARKE thought the first patient must have had an old tubercular lesion. He only recollected seeing two cases of pneumothorax without phthisis.—Dr. WALDO said the current view was that there must be a previous lesion. He mentioned the case of a young lady who suddenly developed the affection when dancing. Six weeks' rest had cured her.—Dr. SHINGLETON SMITH felt satisfied that he had met with pneumothorax without there being any evidence of the previous existence of a pulmonary lesion, and he thought it was not right to assume that such cases had all a tubercular origin.—Dr. MARKHAM SKERRITT alluded to the production of pneumothorax from traumatism and in whooping-cough. He recollected having treated one case, soon after he came to Bristol, by tapping time after time. And only the other day he met the patient, who was quite well still. He had met with other cases of the kind. His own practice was to advise tapping on the same principle as he would advise it in other effusions, viz., if there were pressure symptoms. Aspiration was not required. There was not the fear of the lung getting fixed down by adhesions in these cases as in some other effusions.—Dr. EDGEWORTH suggested that both patients should be examined with the X-rays to see if the diaphragm was

immobile on the affected side. This was a sign sometimes given of pulmonary disease in the absence of all other signs.

J. LACY FIRTH.
H. F. MOLE (*Hon. Sec.*).

Local Medical Notes.

The following rules for the prevention of **Consumption or Tuberculosis** have been issued by direction of the Health Committee of the City and County of Bristol:—

Any person may catch Consumption from another, especially if living in the same room or house with a consumptive patient; *but with care there need be no danger.*

The spit, phlegm, or expectoration of a consumptive patient is full of poisonous germs which are the cause of Consumption; this may re-infect the patient himself, therefore these precautions will promote his own recovery.

The patient must take unceasing care never to allow his spit to be deposited upon his handkerchief, clothing or bedding, or upon anything, such as the floor or walls, where it may afterwards dry up and become scattered about as dust. People breathing in or swallowing this dust are in danger of catching Consumption.

Patients suffering from Consumption must always spit into a small spittoon or cup containing some water or disinfecting fluid, or into pieces of rag or paper, which should be burnt before the spit on them has become dry.

The contents of the spittoon or cup should be poured down the water closet, or into the back of the kitchen fire, after which the spittoon or cup should be disinfected by boiling it in water.

No one must spit on the floor inside any building or in any public conveyance; spitting in the street should be avoided.

If any **handkerchiefs, clothing**, etc., have become soiled with the patient's spit, they **must be carefully disinfected** by boiling in water or by soaking for half an hour in some of the disinfecting fluid.

A consumptive patient should not kiss anyone on the mouth.

A consumptive mother should not suckle her baby.

Nothing which has touched the mouth of a consumptive patient, such as a spoon, fork, cup, pipe, etc., should be used by another person until it has been thoroughly washed with boiling water.

Persons attending a consumptive patient should be very

careful to wash and scrub their hands thoroughly after touching the patient, or anything connected with the patient which may have been soiled by the spit.

The bowel discharges of a consumptive patient should be received into a disinfectant, and the utensil thoroughly scalded on each occasion after it has been emptied.

THE BEDROOM OF A CONSUMPTIVE PATIENT.

No other person should sleep in the same room, but persons may safely inhabit the same house if reasonable precautions are observed.

The dusting and cleansing of the room must be carried out frequently and with the greatest care. The dust is dangerous, since it may contain disease germs. **Wet dusters** must be used to wipe up the dust on the floor, furniture, woodwork, etc., and must afterwards be boiled. Tea leaves used on the floor should afterwards be burnt. Cleansing should be done frequently.

Admit as much sunshine and fresh air as possible into the room. These are the best remedies for curing, as well as preventing, Consumption.

No one should occupy the bedroom or any room which has been constantly used by a consumptive patient until it has been thoroughly disinfected and cleansed. This disinfection will be carried out by the Medical Officer of Health, on written application to the Offices, 40 Prince Street, Bristol.

Conditions which make persons liable to Consumption.

1. The commonest condition is probably the stuffy, poisonous air of unventilated bedrooms, living-rooms, and work-rooms. Therefore **rooms should never be overcrowded, chimneys never blocked up. So far as possible windows should always be kept widely opened day and night throughout the year.** Prevent cross draughts by screens, etc., and provide warmer clothing and bedding for the inmates if they feel the cold.
2. Prolonged attacks of cough and cold. In such cases do not fail to consult a doctor.
3. Absence of sunlight and fresh air.
4. Everything which lowers the general health—intemperance, damp dwellings, unventilated rooms.

Milk may carry the poison of Consumption; therefore all milk should be boiled or scalded. Meat should be properly cooked.

Bye-law adopted by the Bristol City Council on November 24th, 1903:—

"A person shall not spit on the floor, side, or wall of any public carriage, or of any public hall, public waiting-

room, or place of public entertainment, whether admission thereto be obtained upon payment or not Any person offending against this Bye-law shall be liable to a fine not exceeding £1."

D. S. DAVIES, M.D.,

December, 1903. *Medical Officer of Health.*

University College, Bristol.—In the recent M.B. Examination for Honours in the University of London, Mr. A. R. Short obtained the first place in Medicine, with the Gold Medal and Scholarship, and also First Class Honours in Obstetric Medicine, Mr. J. J. S. Lucas obtained Third-Class Honours in Medicine and Forensic Medicine. In the final B.S. Examination of the same University, Mr. M. H. Phillips gained the Gold Medal and Scholarship in Surgery. In the final F.R.C.S. England Examination Mr. M. H. Phillips was successful.

The Royal National Pension Fund for Nurses, which was inaugurated in 1887, was established under the Presidency of Her Royal Highness the Princess of Wales, with his Royal Highness the Prince of Wales as Patron. On his accession, His Majesty King Edward VII. was graciously pleased to continue his patronage of the Fund, and Her Majesty Queen Alexandra graciously accepted the office of President. The chief object of the Fund is to afford to Nurses an absolutely safe means of providing, at the lowest possible cost to themselves, an allowance during incapacity for work caused by sickness or accident, and a certain income for their declining years. This object will be carried out by receiving and investing such fixed periodical sums as those who join the Fund can afford, and by adding to the pensions all the profits arising from any source, and by supplementing these sums from a Donation Bonus Fund, created and maintained by those interested in Nurses and Nursing Institutions. In order to encourage the "Sisters" and Members of the Private Nursing Staff of the Bristol Royal Infirmary to make some provision for a certain income in the future, the Committee of the Infirmary have joined the Royal National Pension Fund for Nurses, and are prepared to assist any Sister or Nurse who may wish to join the Fund to the extent stated in and according to the Regulations. The Committee feel that in taking this step they are providing for the Sisters and Nurses a safe investment to secure the intended result. The Fund is practically a Mutual Life Assurance Society, all the profits going to the Nurses. By joining on the "Returnable Scale," Nurses may have their premiums returned to them with compound interest, or if they prefer to pay for a pension they receive substantial additions from the profits arising from the working of the Fund and also from the Donation Bonus Fund.